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XANTHOSIS CUTIS IN POLIOMYELITIS.

By HOWARD W. LINN,
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Clinical Description.

FOR some time I have been impressed with the fact that there was what I regarded as a typical "polio look" about patients with poliomyelitis. This has been particularly evident in those with severe attacks. I often wondered what it was that accounted for the peculiar appearance of these people.

In October, 1949, the answer was revealed when a patient proved to have poliomyelitis after previously being diagnosed as suffering from infectious hepatitis. The skin was yellow in colour, but no bile or urobilinogen was found in the urine. It was then noticed that when this patient had her eyes closed she appeared very ill, but when her eyes were open she looked much better. The explanation of this finding was that the conjunctivæ were not yellow. They were normal in colour except for a slight injection.

On further investigation it was found that the appearance of these poliomyelitis patients clinically resembled that of patients with *xanthosis cutis*. Thus the "polio look" consists of a high, dusky flush on the cheeks upon a yellow background of varying intensity in different patients. There is often a circumoral pallor which is not white, but has a yellow colour. The conjunctivæ are not yellow, but often slightly injected, and this gives the eyes a peculiar prominence. The yellow pigmentation is noticed most in the naso-labial folds, the palms of the hands and the soles of the feet.

Since this observation was first made I have examined over 2500 patients suffering from poliomyelitis of varying type and severity, and only rarely has one been found not to have some degree of *xanthosis cutis*, detectable clinically, in the acute phase of the disease. At times the yellow colour was very slight and it took some practice to be able to notice it. In some cases it was very difficult to assess small degrees of yellowness owing to the natural olive colour of the skin.

Some cases in this epidemic have been atypical, both clinically and as regards cerebro-spinal fluid findings. The *xanthosis cutis* has, however, been consistently observed in both typical and atypical cases.

It is worthy of note that during the course of this investigation *xanthosis cutis* was also found consistently in patients who had encephalitis during an attack of mumps, measles, infectious mononucleosis or endemic typhus fever, as well as in those with poliomyelitis.

In no disease has *xanthosis cutis* been reported previously as a common finding. However, a small number of people with severe diabetes, tuberculosis and myxœdema have this yellow pigmentation of the skin (Bicknell and Prescott, 1947).

Reports of Cases.

Case 1.—A boy, aged twelve years, was admitted to hospital on October 20, 1952. Thirty hours previously he had complained of abdominal pain and had vomited several times. The abdominal pain and vomiting had ceased twelve hours before his admission to hospital. Eighteen hours previously severe headache, backache and photophobia developed, and these were still present on his arrival at hospital.

On examination, the patient was a somewhat apprehensive boy with a dusky flush in the malar regions. The skin was more yellow than normal in the naso-labial folds, palms and soles. His throat was slightly inflamed and the posterior cervical glands were enlarged. Rales were heard in the base of the right lung posteriorly. All muscles appeared weaker than normal. In the examination of the nervous system the cutaneous and tendon reflexes showed a normal response, and sensation was normal. The boy had a moderately stiff neck and back and difficulty in sitting up, the tripod sign and Kernig's sign were elicited. The temperature was 104° F., the pulse rate was 114 per minute, and respirations numbered 24 per minute on his admission to hospital.

The patient was treated with penicillin for his pneumonia, and next morning (October 21) his temperature was 98·4° F. and the signs at the base of the right lung were much more prominent. On October 25 penicillin therapy was discontinued, as his temperature had been normal for over forty-eight hours.

On October 30 he had his first muscle check and weaknesses were found in both sternomastoids, and in the abdominal muscles, the left biceps, the left deltoid and the back shoulder muscles. Both *glutei medii* were weak, the right more than the left. The left *gluteus maximus* was weaker than the right, and the left hamstring muscles were weak.

On November 4 the patient's general condition was satisfactory, but his weaknesses remained the same. He was transferred to the Adelaide Children's Hospital on November 9 for muscle reeducation.

The investigations carried out and their results are set out in Table I.

This boy had a moderately severe attack of poliomyelitis, which was complicated by right basal pneumonia. The high temperature—104° F.—was suggestive of some complication and, as will be shown later, our experience shows that in patients with poliomyelitis and a temperature of over 102° F. some complication is nearly always present. The presence of a bacterial infection was confirmed by the leucocyte count (22,800 per cubic millimetre), the differential leucocyte count with the increase in the number of polymorphonuclear leucocytes and a shift to the left, and the raised erythrocyte sedimentation rate.

The cerebro-spinal fluid findings were unusual, in that the cell count rose from five lymphocytes to 18 lymphocytes per cubic millimetre over ten days, instead of falling, and that the protein content remained normal.

The dusky malar flush and yellowness of the skin of the nasolabial folds, palms and soles is the usual appearance found in patients with poliomyelitis. The yellow-green fluorescence of the palms when placed under filtered ultraviolet light is also characteristic.

Case 2.—On November 21, 1952, a young woman, aged twenty-four years, was admitted to hospital. She had been feeling "run down" for seven days. For five days she had had headaches and nausea, and for three days she had been feeling alternately hot and cold and had suffered from a stiff neck and from backache.

On examination, the patient was an apprehensive young woman with a dusky malar flush, and profusely sweating palms and soles which were yellow in colour. Her eye movements were nystagmoid to the right. Her right deltoid and sternomastoid muscles were slightly weak. In the examination of the nervous system the cutaneous and tendon reflexes were normal, as was sensation. Her neck was slightly stiff and her back was very stiff, but she was able to sit up unaided, and the tripod sign was not present. Kernig's sign was elicited. The temperature on her admission to hospital was 99·6° F., the pulse rate was 92 per minute and respirations numbered 24 per minute.

By November 25 the patient was feeling much better, and a muscle check on November 28 showed weakness of all groups of the left foot and left shoulder. However, by December 10 there was very little weakness remaining, so she was discharged to her home. The results of the investigations carried out are set out in Table II.

Table I.

Date.	Investigation.	Results.
20.10.52	Cerebro-spinal fluid.	Pressure, 120 millimetres of water; 5 lymphocytes per cubic millimetre; protein content, 25 milligrammes *per centum*.
30.11.52	Cerebro-spinal fluid (repeated).	Pressure, 100 millimetres of water; 18 lymphocytes per cubic millimetre; protein content, 30 milligrammes *per centum*.
20.10.52	Hæmoglobin value.	95% (Sahli).
20.10.52	Examination of leucocytes.	22,800 per cubic millimetre; 85% polymorphonuclear cells, 8% lymphocytes, 7% monocytes; "shift to the left" in polymorphonuclear cells.
20.10.52	Erythrocyte sedimentation rate.	26 millimetres in one hour.
20.10.52	Lipochrome index.	1·0.
20.10.52	Icteric index.	Specimen hæmolysed.
20.10.52	Albumin-globulin ratio.	Total protein content, 7·5 milligrammes *per centum*; albumin, 4·8 milligrammes *per centum*; globulin, 2·7 milligrammes *per centum*; albumin-globulin ratio, 1·8.
20.10.52	Serum cholesterol content.	100 milligrammes *per centum*.
20.10.52	Serum potassium content.	4·0 milliequivalents per litre.
20.10.52	Serum carotene content.	59 γ per 100 mils.
20.10.52	Serum vitamin *A* content.	168 international units per 100 mils.
20.10.52	Urine.	Specific gravity, 1·016; reaction, alkaline; no abnormality detected.
20.10.52	Palm fluorescence.	Yellow-green.

This young woman had a mild attack of poliomyelitis. She fortunately had rapid recovery of her weak muscles during her stay in hospital. There were five cells per cubic millimetre in her cerebro-spinal fluid, and the protein content was within normal limits. Her leucocyte count was low (3000 per cubic millimetre), but unfortunately no differential count was carried out.

Case 3.—A boy, aged fifteen years, was admitted to hospital on November 20, 1952. For two days he had had aching and stiffness of his neck and back, pain in the calves, and occipital headache.

Table II.

Date.	Investigations.	Results.
21.11.52	Cerebro-spinal fluid.	Pressure, 90 millimetres of water; 5 cells per cubic millimetre; protein content, 20 milligrammes *per centum*.
21.11.52	Hæmoglobin value.	97% (Sahli).
21.11.52	Leucocytes.	3000 per cubic millimetre.
21.11.52	Erythrocyte sedimentation rate.	4 millimetres in one hour.
21.11.52	Lipochrome index.	1·5.
21.11.52	Icteric index.	6·0.
21.11.52	Albumin-globulin ratio.	Total protein content, 7·0 milligrammes *per centum*; albumin, 5·1 milligrammes *per centum*; globulin, 1·9 milligrammes *per centum*; albumin-globulin ratio, 2·7.
21.11.52	Serum cholesterol content.	70 milligrammes *per centum*.
21.11.52	Serum potassium content.	5·7 milliequivalents per litre.
21.11.52	Serum carotene content.	195γ per 100 mils.
21.11.52	Serum vitamin *A* content.	140 international units per 100 mils.
21.11.52	Urine.	Specific gravity, 1·010; reaction, acid; no abnormality detected.
21.11.52	Palm fluorescence.	Yellow-green.

On examination, the boy was apprehensive and had a dusky malar flush. His palms and soles were moist and yellow. His throat was slightly injected and his cervical and axillary glands were enlarged. The muscles of both his thighs were weak, but the right was weaker than the left.

In the examination of the nervous system the plantar reflex was normal, but only the right lower abdominal reflex was elicited. The tendon reflexes and sensation were normal. The boy had a slightly stiff neck, but his back was very stiff and he had considerable difficulty in sitting up unaided, and the tripod sign was present. Kernig's sign was elicited. The temperature was 102° F. on his admission to hospital, the pulse rate was 100 per minute and the respirations numbered 20 per minute.

The boy's severe headache persisted until it was relieved by the second lumbar puncture on November 26. A muscle check on the same day revealed mild weakness of the right thigh and the right *gluteus medius* and *gluteus maximus* muscles. By December 10 his muscle weakness had decreased, and no obvious weakness was found. He was discharged home on December 12.

The results of investigations carried out are set out in Table III.

TABLE III.

Date.	Investigation.	Result.
20.11.52	Cerebro-spinal fluid.	Pressure, 120 millimetres of water; cells, none; protein content, 25 milligrammes *per centum*.
26.11.52	Cerebro-spinal fluid.	Pressure, 50 millimetres of water; cells, 20 per cubic millimetre (11 polymorphonuclear cells, 9 lymphocytes); protein content, 65 milligrammes *per centum*.
20.11.52	Hæmoglobin value.	94% (Sahli).
20.11.52	Leucocytes.	4300 per cubic millimetre.
26.11.52	Leucocytes.	5000 per cubic millimetre (polymorphonuclear cells 49%, lymphocytes 41%, monocytes 6%, eosinophile cells 4%).
20.11.52	Erythrocyte sedimentation rate.	9 millimetres in one hour.
20.11.52	Lipochrome index.	<1·0.
20.11.52	Icteric index.	4·0.
20.11.52	Albumin-globulin ratio.	Total protein content, 6·3 milligrammes *per centum*; albumin, 4·3 milligrammes *per centum*; globulin, 2·0 milligrammes *per centum*; albumin-globulin ratio, 2·2.
20.11.52	Serum cholesterol content.	50 milligrammes *per centum*.
20.11.52	Serum potassium content.	4·5 milliequivalents per litre.
20.11.52	Serum carotene content.	105γ per 100 mls.
20.11.52	Serum vitamin *A* content.	128 international units per 100 mls.
20.11.52	Urine.	Specific gravity, 1·028; reaction, acid; no abnormality detected.
20.11.52	Palm fluorescence.	Yellow-green.

This boy had a typical mild attack of poliomyelitis with muscle weakness which recovered rapidly. It is of interest that his persistent headache was relieved by the second lumbar puncture. We have found that severe headache is often dramatically relieved in this way, even though the cerebro-spinal fluid pressure is normal. The cerebro-spinal fluid findings were unusual, in that no cells were present on his admission to hospital, but six days later 20 cells per cubic millimetre were found. The protein content behaved as expected, increasing from 25 to 65 milligrammes *per centum* during this time.

CASE 4.—On November 22, 1952, a young man, aged seventeen years, was admitted to hospital. Ten days earlier he had developed a severe pain across the right upper quadrant of his abdomen, which lasted for three days and was made worse by breathing deeply. The day before his admission to hospital he had a severe headache and nausea, which were still present. His arms and legs felt weak just before his admission to hospital.

On examination, he was a somewhat lethargic young man with a dusky malar flush and moist yellow palms and soles. His eyes ached on extreme movement and his throat was slightly inflamed. There was muscle weakness of both quadriceps and both sternomastoids. In the examination of the nervous system the cutaneous reflexes were normal, but both knee jerks were diminished. Sensation was normal, but the neck and back were rigid, he could hardly sit up at all, and the tripod sign was present. Kernig's sign was elicited. The temperature on his admission to hospital was 99·4° F., the pulse rate was 56 per minute and the respirations were 18 per minute.

The patient's condition improved very slowly at first. A muscle check on November 26 revealed generalized weakness of both legs, particularly of the right and left quadriceps, and mild weakness of both arms and back shoulder muscles. On December 2 he complained of nausea and vomited several times. It was noticed that the whole of his skin was yellow in colour, but that his conjunctivæ were white. There were no bile pigments of urobilinogen in his urine. He had another lumbar puncture that evening, and next morning was no longer nauseated. By December 13 he was very well, and a muscle check revealed only very slight generalized weakness. Because of poor home conditions he was transferred to the convalescent wards on December 15 for one week's observation before going home.

The results of investigations carried out are set out in Table IV.

TABLE IV.

Date.	Investigations.	Results.
22.11.52	Cerebro-spinal fluid.	Pressure, 220 millimetres of water; cells, 40 per cubic millimetre (60% polymorphonuclear cells); protein, 40 milligrammes *per centum*).
28.11.52	Cerebro-spinal fluid (repeated).	Pressure, 150 millimetres of water; cells, 35 per cubic millimetre (30% polymorphonuclear cells, 70% lymphocytes); protein content, 25 milligrammes *per centum*.
2.12.52	Cerebro-spinal fluid (repeated).	Pressure, 120 millimetres of water; cells, 20 per cubic millimetre (15% polymorphonuclear cells, 85% lymphocytes); protein content, 20 milligrammes *per centum*).
22.11.52	Hæmoglobin value.	100% (Sahli).
22.11.52	Leucocytes.	5100 per cubic millimetre.
22.11.52	Erythrocyte sedimentation rate.	2 millimetres in one hour.
22.11.52	Lipochrome index.	2·5.
22.11.52	Icteric index.	6·0.
22.11.52	Albumin-globulin ratio.	Total protein content, 7·7 milligrammes *per centum*; albumin, 5·6 milligrammes *per centum*; globulin, 2·1 milligrammes *per centum*; albumin-globulin ratio, 2·7.
22.11.52	Serum cholesterol content.	60 milligrammes *per centum*.
22.11.52	Serum potassium content.	6·5 milliequivalents per litre.
22.11.52	Serum carotene content.	362γ per 100 mls.
22.11.52	Serum vitamin *A* content.	92 international units per 100 mls.
1.12.52	Serum vitamin *A* content.	144 international units per 100 mls.
1.12.52	Serum carotene content.	328γ per 100 mls.
22.11.52	Urine.	Specific gravity, 1·004; reaction, acid; no abnormality detected.
22.11.52	Palm fluorescence.	Yellow-green.

This man had a fairly severe attack of poliomyelitis with rapid recovery of muscle strength. The cerebro-spinal fluid, on his admission to hospital, contained 40 cells per cubic millimetre. This number fell progressively, as expected, to 35 per cubic millimetre in six days, and to 30 per cubic millimetre in ten days. However, the protein content also fell progressively over this time, although remaining within the normal range, instead of rising. Another unusual feature was the raised cerebro-spinal fluid pressure on his admission to hospital.

I was especially interested to notice that this patient's skin became more and more yellow during his first week in hospital until he was deeply jaundiced, but his conjunctivæ and urine remained normal. Estimation of the serum carotene and vitamin *A* levels was repeated, but although there was a slight fall in the serum carotene level it could be accounted for by an increase in serum vitamin *A* level. However, both serum carotene levels were very high (362 and 328γ per 100 millilitres), being well above the upper limit of normal (280γ per 100 millilitres). The serum vitamin *A* levels were well within normal limits.

Investigation.

Rabinowitch in 1928 found xanthosis to be present in 59 out of 1014 diabetics. He thought that it was due to some other factor than merely a diet of high vegetable content. Later, in 1935, Ralli showed that the xanthochromia of diabetes was due to an increase in the circulating carotene, which occurred because of an apparent decrease in the

capacity of the liver of the diabetic to convert this lipochrome into vitamin *A*. This was confirmed by Brazer and Curtis in 1940.

In view of these findings it was considered likely that a similar state of affairs existed in *xanthosis cutis* occurring in patients with poliomyelitis. Investigations were initiated to find out if this was so.

Diet.

Diet was first excluded as a factor in the causation of the *xanthosis cutis*. In over 1000 cases of poliomyelitis no gross abnormalities of diet were found.

Table V.
Serum Vitamin A Content.

Case Number.	Serum Vitamin *A* Content. (International Units per 100 Millilitres.)[1]	Case Number.	Serum Vitamin *A* Content. (International Units per 100 Millilitres.)
1	112	27	184
2	128	28	168
3	148	29	168
4	160	30	208
5	*44*	31	164
6	208	32	248
7	192	33	259
8	288	34	259
9	168	35	*344*
10	182	36	120
11	156	37	220
12	276	38	284
13	*64*	39	192
14	264	40	—
15	256	41	—
16	136	42	140
17	*96*	43	120
18	*84*	44	128
19	200	45	*92*
20	184	46	112
21	280	47	120
22	172	48	100
23	136	49	*64*
24	120	50	*84*
25	200	51	120
26	144		

[1] Normal range, 100 to 300 international units per 100 mils.

Serum Lipochrome Indices.

Lipochrome indices were estimated in 104 cases of poliomyelitis in the acute phase. Of these patients 93 were found to have a lipochrome index varying from 0·5 to 4·0. Eleven had a lipochrome index of 0. The icteric indices of most of these patients were normal, but an occasional one rose to 8·0. Any increase in icteric index was more than accounted for by the lipochrome index. No abnormalities were discovered by chemical tests on the urine. It was considered that these results fell within normal limits.

The lipochrome extracted from the serum was spectroscopically examined, and an absorption band corresponding to that of carotene was consistently obtained.

Blood lipochrome indices of up to 4·0 are not nearly high enough to cause a yellow discoloration of the skin due to the blood level alone.

Serum Carotene and Vitamin A Levels.

Investigation of the blood carotene and vitamin *A* levels was next undertaken by means of spectrophotometric assay. Sera from 50 patients with poliomyelitis were examined.

The generally accepted normal range for vitamin *A* in the serum is 100 to 300 international units per 100 millilitres, on the assumption that one microgramme of vitamin *A* is equivalent to four international units (*vide* Table I). In all except eight of the sera examined the level fell within these limits. Of eight exceptions, in seven the level was a little below the lower limit of the normal range and in one it was slightly raised.

There appears to be a slight variation in the figures given for the normal range of carotene in the serum. However, those given by Steininger *et alii* (1939)—namely, 58 to 280 microgrammes per 100 mils—and those of Yudkin (1941)—50 to 241 microgrammes per 100 mils—seem in reasonable agreement. Only six of the 50 sera examined gave abnormal results (*vide* Table II). In one the level was a little low, in another it was slightly raised, while in three it was considerably raised.

These results were rather unexpected. However, as the majority of the sera had normal carotene and vitamin *A* levels, it is reasonable to assume that at the time of their collection the liver function for converting carotene to vitamin *A* was satisfactory.

Table VI.
Serum Carotene Content.

Case Number.	Serum Carotene Content. (γ per 100 Millilitres.)[1]	Case Number.	Serum Carotene Content. (γ per 100 Millilitres.)
1	119	27	351
2	163	28	110
3	116	29	147
4	100	30	59
5	71	31	208
6	242	32	260
7	147	33	119
8	*43*	34	197
9	113	35	116
10	74	36	93
11	106	37	88
12	160	38	83
13	146	39	114
14	*283*	40	119
15	144	41	—
16	83	42	—
17	89	43	195
18	174	44	213
19	174	45	105
20	210	46	*362*
21	256	47	107
22	114	48	105
23	87	49	145
24	56	50	93
25	89	51	*397*
26	157	52	*363*

[1] Normal range, 50 to 280 microgrammes per 100 mils.

Transport of Carotene in the Blood.

In 1914 Palmer proved conclusively that carotene is carried in the blood in combination with the albumin fraction of the serum. Kekwick, in 1938, crystallized two forms of albumin from horse-serum. Albumin *A* is yellow with small crystals, and has a higher carbohydrate content than the colourless albumin *B*, which has large crystals. It is taken for granted, in the literature, that all the yellow colour of albumin *A* is due to bile pigments. These certainly play some part; but the probability that carotene is responsible for a considerable part of the colour appears to have been overlooked.

As no confirmation of Palmer's work could be found in the literature, a simple experiment was undertaken. Carotene was first extracted from normal human serum in the usual way by petrol ether after precipitation of the proteins by ethyl alcohol. Next, a portion of the same serum was taken and the globulin fraction was precipitated by half saturation with saturated ammonium sulphate solution (52·8 grammes per 100 millilitres). This was filtered off and the albumin filtrate extracted with petrol ether after treatment with ethyl alcohol. This second extract was twice as dilute as the first. The carotene content of both extracts was estimated spectrophotometrically. The first extract contained 89 microgrammes per 100 millilitres of carotene, while the second extract contained 46 microgrammes per 100 millilitres. Thus, when allowance is made for experimental error, the second extract contained half as much carotene as the first extract, which was half as dilute. From this it can be seen that all the carotene is contained in the albumin fraction of the serum. Palmer attached considerable importance to his finding that a phospholipid and cholesterol were in com-

bination with the caroto-albumin. However, Blix and others have recently shown by electrophoresis experiments that phospholipids and cholesterol are present in all fractions of human serum.

Blood Cholesterol Levels.

Rabinowitch (1928) reported what had been noted previously by others, that those patients suffering from *diabetes mellitus* and *xanthosis cutis* with the highest serum levels of carotene tended in general to have the highest levels of lipid. Anderson and Soley (1938) and Josephs (1944) reaffirmed this, and also stressed the close relationship between carotene and cholesterol levels in the blood.

It is generally recognized that blood cholesterol levels are low in all acute infections (Samson Wright, 1947).

In view of the foregoing reports of high blood cholesterol levels associated with *xanthosis cutis*, it was decided to see if this was so in this poliomyelitis epidemic. Blood was taken from 49 patients with poliomyelitis soon after their admission to hospital. The blood cholesterol levels were investigated. The normal range for the method used is 100 to 200 milligrammes per 100 mils. Values obtained for blood cholesterol were below 100 milligrammes per 100 mils in 37 of the patients. In only one patient was the level raised. This was accounted for by a twenty-four weeks' pregnancy. The lowest value found was 35 milligrammes per 100 mils, and the average was 84 milligrammes per 100 mils (*vide* Table III).

Thus we have the occurrence of *xanthosis cutis* in patients with poliomyelitis in whom the blood cholesterol level is considerably reduced.

TABLE VII.
Blood Cholesterol Content.

Case Number.	Blood Cholesterol Content. (Milligrammes *per Centum.*)[1]	Case Number.	Blood Cholesterol Content. (Milligrammes *per Centum.*)
1	*95*	26	*70*
2	100	27	*75*
3	*90*	28	100
4	*90*	29	*80*
5	*80*	30	*280*
6	*60*	31	*70*
7	105	32	120
8	*90*	33	120
9	*80*	34	110
10	*35*	35	*95*
11	*40*	36	*40*
12	*75*	37	100
13	*65*	38	*95*
14	*50*	39	*55*
15	*65*	40	*50*
16	*75*	41	*70*
17	*60*	42	100
18	*55*	43	*50*
19	*75*	44	*60*
20	*40*	45	—
21	110	46	115
22	*90*	47	145
23	*75*	48	*95*
24	*65*	49	*80*
25	*65*	50	170

[1] Normal range, 100 to 200 milligrammes *per centum.*

Albumin-Globulin Ratios.

It was thought that further light might be thrown on the carotene-albumin combination by estimating albumin-globulin ratios in cases of poliomyelitis, as no reference could be found to this in the literature. Consequently albumin-globulin ratios were estimated on the serum of 43 patients immediately after their admission to hospital.

It was found that there was a tendency for the albumin values to be high and the globulin values low. The average value obtained for albumin was 4·9 milligrammes per 100 mils (normal range 3·8 to 5·2 milligrammes per 100 mils). In ten cases the albumin values were higher than normal.

The average globulin value was 2·0 milligrammes per 100 mils (normal range 2·0 to 3·5 milligrammes per 100 mils). Fifteen of the globulin values were below normal (*vide* Table IV).

All except two values for the total serum proteins were within normal limits.

The albumin-globulin ratios, with four exceptions, were within the normal range (1·2 to 4·0). Exceptions were 4·2, 6·8, 1·1 and 5·1. The average ratio was 2·5. Some patients on whom tests were performed had severe pharyngitis. In these there was no change from the normal. All these tests were controlled by investigation of normal serum at the same time.

Thus it has been shown (Table IV) that the serum albumin values have a tendency to be high while the serum globulin values tend to be low. As far as I am aware this state of affairs has not been reported in any other acute infection.

TABLE VIII.
Serum Proteins.

Case Number.	Serum Protein Content. (Milligrammes per 100 Mils.)	Serum Albumin Content. (Milligrammes per 100 Mils.)	Serum Globulin Content. (Milligrammes per 100 Mils.)	Albumin-Globulin Ratio.
1	7·0	4·9	2·1	2·3
2	6·8	4·5	2·3	2·0
3	7·2	5·1	2·1	2·4
4	7·0	5·1	*1·9*	2·7
5	7·0	5·1	*1·9*	2·7
6	7·2	5·0	2·2	2·3
7	7·2	5·1	2·1	2·4
8	7·5	*5·3*	2·2	2·4
9	7·0	4·5	2·5	1·8
10	6·8	*5·5*	*1·3*	*4·2*
11	7·4	*5·6*	*1·8*	3·2
12	6·7	5·0	*1·7*	2·9
13	6·1	5·1	*1·0*	*5·1*
14	6·8	*5·4*	*1·4*	3·9
15	7·2	*5·3*	*1·9*	2·8
16	7·4	*5·5*	*1·9*	2·9
17	7·2	4·6	2·6	1·8
18	7·8	*6·1*	*0·9*	*6·8*
19	7·9	4·4	3·5	1·3
20	7·2	4·3	2·9	1·5
21	7·5	4·4	3·1	1·4
22	7·5	4·8	2·7	1·8
23	6·6	4·5	2·1	2·1
24	6·3	4·2	2·1	2·0
25	7·5	*5·3*	2·2	2·4
26	7·2	4·9	2·3	2·1
27	7·0	5·1	*1·9*	2·7
28	6·3	4·2	2·1	2·0
29	6·5	4·7	*1·8*	2·6
30	6·8	4·6	2·2	2·1
31	7·2	5·0	2·2	2·3
32	6·4	4·1	2·3	1·8
33	6·8	4·8	2·0	2·4
34	6·3	4·4	*1·9*	2·3
35	7·0	5·1	*1·9*	2·7
36	*8·4*	*6·2*	2·2	2·8
37	6·3	4·3	2·0	2·2
38	7·7	*5·6*	2·1	2·7
39	*8·1*	*5·5*	2·6	2·1
40	7·0	5·2	*1·8*	2·9
41	7·0	Insufficient serum.		
42	7·2	4·6	2·6	1·8
43	7·0	*3·6*	3·4	1·1
44	7·2	5·0	2·2	2·3
Normal	6·0 to 8·0	3·8 to 5·2	2·0 to 3·5	1·2 to 4·0

Erythrocyte Sedimentation Rate.

Erythrocyte sedimentation rates were estimated by the Wintrobe method in the acute phase of poliomyelitis in 100 cases. In slightly over 80% results which fell within normal limits were obtained. The other patients all had some other infection as well.

The following was typical of many cases reported.

X. was admitted to hospital suffering from poliomyelitis. Examination showed him to have a temperature of 101° F., a stiff neck and back and inability to sit up unaided. There was also some weakness of the left leg. Examination of the cerebro-spinal fluid revealed 46 leucocytes per cubic milli-

metre and a protein content of 40 milligrammes per 100 mils. The erythrocyte sedimentation rate was one millimetre in one hour.

The erythrocyte sedimentation rate has thus been found a useful aid in the diagnosis of poliomyelitis.

It would seem likely that the changes in serum albumin and serum globulin levels described above are related to the finding of normal erythrocyte sedimentation rates in poliomyelitis.

Serum Potassium Levels.

One of the most specific clinical signs of potassium deficiency is muscular weakness (Daley and Miller, 1952). As this is so, it was decided to estimate the serum potassium levels in a series of 23 poliomyelitis patients. Unfortunately, four specimens were slightly hæmolysed, and so the results were obtained in only 19 cases (Table V). In all except one of these the figure fell within the

Table IX.

Serum Potassium Content.

Case Number.	Serum Potassium. (Milliequivalents per Litre.)	Case Number.	Serum Potassium. (Milliequivalents per Litre.)
1	4·0	14	5·7
2	5·0	15	6·0
3	4·5	16	4·5
4	4·5	17	6·5
5	(Specimen hæmolysed)	18	6·8
		19	6·0
6	6·3	20	(Specimen hæmolysed)
7	4·4		
8	6·4	21	4·2
9	4·0	22	(Specimen hæmolysed)
10	5·4		
11	4·0	23	(Specimen hæmolysed)
12	4·7		
13	5·0		

normal range of 4·0 to 6·5 milliequivalents per litre. In the one exception (Case XVIII) the figure was slightly raised to 6·8 milliequivalents per litre. This, then, excludes the possibility that potassium deficiency has anything to do with muscle weakness in poliomyelitis.

Fluorescence of the Living Skin.

Popper (1941) stated that carotene, in relatively high concentration, yielded a green, slowly fading fluorescence. Thus it was decided to expose the skin of poliomyelitis patients with *xanthosis cutis* to filtered ultra-violet light. The lamp used was a portable "Hanovia" with a filter of Wood's glass type. This filter transmits only invisible ultra-violet rays, which produce fluorescence effects on suitable objects when they are exposed to the beam. It was found that the palms of the hands showed variations in fluorescence better than elsewhere, and were also easily compared with the normal.

This investigation was begun by examining for fluorescence the palms of 40 apparently normal young adults. The fluorescence was found to vary from a light whitish-blue to a deep dusky-blue. After this, poliomyelitis patients had their palms exposed to filtered ultra-violet light as soon after their admission to hospital as possible. Two hundred and thirteen patients with poliomyelitis have been examined to date. In every case the palms of their hands fluoresced a yellow-green colour. The fluorescence varied from a light yellow-green, with the yellow predominating, to a deep yellow-green. In a few cases it was thought at first that the fluorescence was inconclusive. However, when more experience was gained, it was found that normal skin fluoresces more blue the longer it is observed, whereas that of poliomyelitis patients becomes more yellow-green. It was found that even the skin of patients with only faint *xanthosis cutis*, which took some practice to appreciate, fluoresced a definite yellow-green. This fluorescence usually lasted two weeks, but sometimes remained for as long as four weeks.

Patients with other acute infectious diseases have had the fluorescence of their palms examined in a similar manner; these were: pharyngitis (10 patients), scarlet fever (eight), erysipelas (three), measles (15), mumps (eight), diphtheria (eight), chicken-pox (two), whooping-cough (three), pneumococcal meningitis (one), influenzal meningitis (one), meningococcal meningitis (five), tuberculous meningitis (three), polyarthritis (one), infectious mononucleosis (four), typhus fever (two). The skin of none of these patients showed any variation from the normal dusky-blue fluorescence. Although the number of controls was small, the result suggested that in acute infectious diseases palms having yellow-green fluorescence were confined to patients with poliomyelitis.

Recently, however, I have found the yellow colour and yellow-green fluorescence in eight cases of mumps encephalitis, in three cases of measles encephalitis, in one case of endemic typhus fever with encephalitis, and in three cases of infectious mononucleosis with encephalitis. The fluorescence was normal in all these conditions when they were uncomplicated by encephalitis.

The examination of the palms of the hands by filtered ultra-violet light has been found of considerable value as an auxiliary test in differentiating between poliomyelitis or encephalitis complicating another disease and other acute infections, particularly tuberculous meningitis.

Fluorescence of Caroto-albumin.

Substances are known to fluoresce differently according to the solvent used. In view of this, it was decided to extract the albumin fraction of normal blood serum. This, as was noted earlier, contained all the carotene in the blood. The caroto-albumin was then exposed to filtered ultra-violet light. A yellow-green fluorescence was observed, identical with that seen in the palms of poliomyelitis patients. So far, no other substance has been found which produces a similar fluorescence.

Fluorescence of Skin Sections.

In 1939 Edwards and Duntley, using a Hardy photoelectric recording spectrophotometer, examined the pigments of normal living skin. They reported the presence of small amounts of carotene in the *stratum corneum* of the epidermis, especially in the thicker areas of the palms and soles, but found it absent from the deeper layers of the skin. Cornbleet and Popper (1942) examined sections of normal skin by transmitted filtered ultra-violet light. Their description was as follows: "The epidermis shows a dark blue fluorescence except for the keratin layer which contracts with a lighter blue-grey." The basal layer of the epidermis was described as a "dark zone showing practically no fluorescence which is demarcated against the lighter fluorescent corium". As these sections of the skin were taken from the back, it was decided to examine sections of normal skin from the palm of the hand. Thus biopsies were obtained from five patients undergoing operations for various disorders. Frozen sections were examined in water by transmitted filtered ultra-violet light after being fixed for three hours in 10% formol saline. The findings in general were similar to those of Cornbleet and Popper, described above. However, in the palm it was found that the horny layer showed some degree of yellow-green fluorescence, which was most noticeable on the surface. This fluorescence was faint and much less noticeable than the yellow-green fluorescence of the subcutaneous fat. Hamperl (1934) gave a somewhat different description; but the methods used by Cornbleet and Popper were better in that they excluded changes in fluorescence found in sections prepared in paraffin blocks, and only fresh material was used for the preparation of sections.

The slight yellow-green fluorescence in the horny layer of skin from a normal hand was taken to confirm the finding by Edwards and Duntley of small amounts of carotene in the horny layer, particularly in the skin of the palm.

Biopsies of skin from the palm of the hand were also carried out on 11 patients with poliomyelitis. When

sections were examined by fluorescence microscopy, the only difference from the normal picture was the very prominent yellow-green fluorescence of the horny layer of the epidermis. It was identical in colour, but much brighter than that in the normal epidermis. Beside this fluorescence all other fluorescence in the skin paled into insignificance. The next most prominent was a fainter yellow-green fluorescence of the subcutaneous fat.

It is assumed, therefore, that a substance giving off a yellow-green fluorescence, when examined under filtered ultra-violet light, is present in the *stratum corneum* of the epidermis in patients with poliomyelitis, much in excess of that found in normal people.

Discussion.

The occurrence of *xanthosis cutis* in patients with poliomyelitis has been described for the first time. This condition has also been noticed in patients who had encephalitis during the course of mumps, measles, infectious mononucleosis and endemic typhus fever. Gard (1937) described the cyanotic tinge of the face with circumoral pallor. However, so far as is known, no description of *xanthosis cutis* in these conditions has been made previously. The presence of this sign has been found a very useful aid in diagnosis.

A number of experiments were carried out in an attempt to find the cause of this yellow skin pigmentation. The following were the most important observations made during these investigations: (i) The serum lipochrome indices were not grossly abnormal. (ii) Most serum carotene levels were within normal limits; however, a few were raised. (iii) When the palms of patients with poliomyelitis or encephalitis associated with mumps, measles, infectious mononucleosis, and endemic typhus fever were exposed to filtered ultra-violet light, the fluorescence differed considerably from the normal. This yellow-green fluorescence was observed to be identical with that emitted by the albumin fraction of human serum. The albumin fraction of serum has previously been reported (Palmer, 1914) to contain all the carotene in the blood. This was confirmed in the present investigation. No other substance has so far been found to give this same peculiar fluorescence. (iv) Examination by fluorescence microscopy of fresh skin sections from patients with poliomyelitis showed that this pigment occurred only in the horny layer of the skin. This fluorescence was identical in colour with that of the normal horny layer, but was very much brighter. The work of Edwards and Duntley (1939) showed that carotene was present only in the horny layer of normal skin.

Findings (iii) and (iv) above suggest that the substance responsible for the *xanthosis cutis* is carotene. If this was so, one would expect the serum lipochrome indices and carotene levels ((i) and (ii) above) to be raised. It is suggested that an early rise in serum carotene level occurs several days before the patient feels ill enough to consult his doctor and be admitted to hospital. Some of the excess carotene in the blood would be distributed to the skin, while the remainder would be returned to within normal limits by factors to be mentioned presently. It is well known (Guyton, 1949) that most sick patients with poliomyelitis show evidence of considerable over-action of the sympathetic nervous system — for example, excessive sweating, extreme apprehension, severe constipation and sometimes retention of urine. The excessive secretion of thyroxin, as a result of this, would mobilize carotene and vitamin *A* from the liver, as they are antagonists of thyroxin (Drill, 1943). This would account for the mobilization of carotene, which is presumed to occur in the early stages of poliomyelitis. As the condition progresses and the temperature rises, the blood carotene levels will fall and be within normal limits on the patient's admission to hospital. Bicknell and Prescott (1947) state that, during fever, mobilization of carotene and vitamin *A* is poor or virtually does not occur. Further evidence in favour of this hypothesis arises from the fact that it is known that *xanthosis cutis* can be present several days prior to admission to hospital. Several parents of children admitted to hospital with poliomyelitis, and also some adult patients, volunteered that they had noticed a yellow colour of the face and palms for several days before symptoms referable to the central nervous system became evident. In addition, I observed this yellow pigmentation of the skin in a friend of mine three days before the onset of a pounding headache, a stiff neck and back, and a temperature of 103° F.

It is maintained, therefore, although no absolute proof was found, that the results of these investigations are all consistent with, and some strongly suggest that, the cause of the *xanthosis cutis* is carotene.

During the course of this investigation a number of other interesting observations were made.

The blood cholesterol levels were found to be low in nearly all patients with acute poliomyelitis. This is of interest, as most authors agree that blood cholesterol levels are raised when *xanthosis cutis* occurs in other conditions (Rabinowitch, 1928; Anderson and Soley, 1938; Josephs, 1944).

Albumin-globulin ratios were mostly normal, although there was a tendency for the globulin level to be low and the albumin level high. Probably as a result of this, erythrocyte sedimentation rates were found to be normal in patients with uncomplicated acute poliomyelitis. Fahraeus (1929) and Longsworth *et alii* (1939) have shown that the results of this test largely depend on the globulin concentration in the blood. Hartman and Weinstein (1948) considered the erythrocyte sedimentation rate of no value in the diagnosis of poliomyelitis. The experience here, however, agreed with that of Kagan (1929) and of Fox and Evrard (1946), who were satisfied that this test was a useful diagnostic aid in this disease.

As a direct result of the investigation of *xanthosis cutis* in patients with poliomyelitis, a test has been developed which has proved a useful bedside aid to diagnosis. When examined under filtered ultra-violet light, the palms of normal healthy people and the palms of patients suffering from any acute infection, other than acute poliomyelitis or encephalitis, produced a fluorescence of a normal dusky-blue colour. In the two exceptions—namely, acute poliomyelitis and encephalitis complicating other acute infections—the fluorescence was found to be a yellow-green colour. These observations form the basis of this bedside test, which has been found a useful diagnostic aid in poliomyelitis. The test has been especially valuable in helping to distinguish between tuberculous meningitis and poliomyelitis.

Summary.

1. A clinical description is presented of *xanthosis cutis* occurring in patients with poliomyelitis. Subsequently this phenomenon has been noticed in encephalitis complicating mumps, measles, infectious mononucleosis and endemic typhus fever.

2. The investigations carried out in an attempt to discover the cause of the *xanthosis cutis* have been described.

3. During the course of these investigations the value of the erythrocyte sedimentation rate as an aid to diagnosis was confirmed.

4. A new bedside test is described. This has proved a useful aid in the diagnosis of poliomyelitis. The clinical application of this test is discussed.

Acknowledgements.

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References.

ANDERSON, H. H., and SOLEY, M. H. (1938), "The Effects of Carotinemia on the Function of the Thyroid and the Liver", *Am. J. Med. Sci.*, 195: 313.

BICKNELL, F., and PRESCOTT, F. (1947), "The Vitamins in Medicine", Second Edition, 78.

Blix, G., Tiselius, A., and Svensson, H. (1941), "Lipide and Polysaccharides in Electrophoretically Separated Blood Serum Proteins", *J. Biol. Chem.*, 137: 485.

Brazer, J. E., and Curtis, A. E. (1940), "Vitamin A Deficiency in Diabetes Mellitus", *Arch. Int. Med.*, 65: 90.

Cornbleet, T., and Popper, H. (1942), "Properties of Human Skin Revealed by Fluorescence Microscopy", *Arch. Dermat. & Syph.*, 46: 59.

Daley, R., and Miller, H. G. (1952), "Progress in Clinical Medicine", Second Edition. 118.

Drill, V. A. (1943), "Inter-relation Between Thyroid Function and Vitamin Metabolism", *Physiol. Rev.*, 23: 355.

Edwards, A. E., and Duntley, S. Q. (1939), "The Pigments and Colour of Living Human Skin", *Am. J. Anat.*, 65: 1.

Fahraeus, R. (1929), "The Suspension Stability of the Blood", *Physiol. Rev.*, 9: 241.

Fox, M. J., and Evrard, J. R. (1946), "The Sedimentation Rate as an Aid in the Diagnosis of Acute Poliomyelitis", *Am. J. Med. Sci.*, 211: 707.

Gard, S. (1937), *"Observations récentes poliomyélite faites en Suède au sujet des formes frustes de la poliomyélite"*, *Bull. Off. Internat. d'Hyg. pub.*, 29: 269.

Guyton, A. C. (1949), "Reaction of the Body to Poliomyelitis and the Recovery Process", *Arch. Int. Med.*, 83: 1.

Hamperl, H. (1934), "Fluorescence Microscopy of Human Tissues", *Virchows Arch. f. path. Anat.*, 292: 1.

Hartman, T. L., and Weinstein, L. (1948), "Erythrocyte Sedimentation Rate Determination in Poliomyelitis and Other Infections of the Central Nervous System and Meninges", *J. Pediat.*, 33: 462.

Josephs, H. W. (1944), "Hypervitaminosis A, and Carotinemia", *Am. J. Dis. Child.*, 67: 33.

Kagan, J. R. (1939), "Blood Sedimentation Test in Experimental Poliomyelitis", *Am. J. Med. Sci.*, 178: 67.

Keckwick, R. A. (1938), "Observations on the Crystallizable Albumin Fraction of Horse Serum", *Biochem. J.*, 32: 552.

Longsworth, L. S., Shedlovsky, T., and MacInnes, D. A. (1939), "Electrophoretic Patterns of Normal and Pathological Human Blood Serum and Plasma", *J. Exper. Med.*, 70: 399.

Palmer, L. S., and Eckles, C. H. (1914), "Carotin—The Principal Natural Yellow Pigment of Milk Fat; Its Relation to Plant Carotin and the Carotin of the Body Fat, Corpus Luteum, and Blood Serum. III. The Yellow Lipochrome of Blood Serum", *J. Biol. Chem.*, 17: 223.

Popper, H. (1941), "Histologic Distribution of Vitamin A in Human Organs Under Normal and Under Pathological Conditions", *Arch. Path.*, 31: 766.

Rabinowitch, I. M. (1928), "Carotinæmia and Diabetes", *Canad. Med. Assoc. J.*, 18: 527.

Ralli, E. P., Brandolbone, H., and Mandolbum, T. (1935), "Studies on the Effect of the Administration of Carotene and Vitamin A in Patients with Diabetes Mellitus", *J. Lab. & Clin. Med.*, 20: 1266.

Steininger, G., Roberts, L. J., and Brenner, S. (1939), "Vitamin A in the Blood of Normal Adults", *J.A.M.A.*, 113: 2381.

Wright, S. (1947), "Applied Physiology", Eighth Edition, 731.

Yudkin, S. (1941), "Estimation of Vitamin A and Carotene in Human Blood", *Biochem. J.*, 35: 551.

THE COLOUR OF HUMAN FAT.

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The yellow colour of human fat is, I understand from the biochemists, due to carotenoids, so I presume that the colour of the fat in carotenæmia will be some tint of rich yellow. Some while before retirement from my chair I had been much struck with the variations in colour of the fat of Australians. In some bodies this was of a beautiful buff yellow or chrome colour, so rich that one felt quite a regret that its owner never knew what was under his skin. The idea was probably unfounded, but one thought of those with soft fat of a dingy white colour as having particularly relished and fed on the flesh of swine, and of those with the rich yellow fat as being essentially beef-eaters. In spite of so much mutton being eaten, one did not see at autopsies a nearly pure white, firm type of human fat. From 1942 to 1946, when I happened to have with me Ridgway's "Color Standards and Color Nomenclature" (Washington—my copy is dated 1912), I kept some desultory notes of the colour, matched as well as possible. I have intended for some while to prepare these notes for publication, and this has been brought to actuality by a remark of my son (W. P. Cleland), who mentioned that he had been much struck by the deep colour of the fat of three patients he had operated on whilst in Adelaide, compared with that of persons in London.

I have records of 20 bodies in which the colour of the fat was matched as closely as possible. The age and sex and the condition causing death seem to have no special association with the colour. In the following list the Roman figures refer to the number of the plate in Ridgway's "Color Standards": deep chrome (III): male subject, aged sixty-one years, aneurysm; female subject, aged sixty-nine years, alcoholic, pulmonary embolism; female subject, aged sixty-six years, acute leuchæmia. Between light orange yellow and deep chrome (III): male subject, aged sixty-one years, cirrhosis of the liver and specks of fat necrosis. Light orange yellow: female subject, aged twenty-two years (possibly a full-blood Australian aboriginal); male subject, aged fifty-nine years, carcinoma of the sigmoid. Cadmium yellow (III): male subject, aged sixty-one years, rupture of the aorta. Buff yellow (IV): male subject, aged fourteen years, possible acute nephritis, effusions in pleural cavities; female subject, aged seventy-five years, cerebral softening; male subject, aged seventy-four years, duodenal ulcer; male subject, aged twenty-nine years, hypertrophied and dilated heart; female subject, aged fifty years, meningitis. Light cadmium (IV): male subject, aged seventy-one years, strangulated intestine and silicosis; female subject, aged sixty years, massive pulmonary embolism from varicose veins. Apricot yellow (V): female subject, aged sixty-five years, cerebral softening. Light ochraceous salmon (XV): female subject, aged fifty-three years, necrosis of caecum and colon. Ochraceous buff (XV): male subject, aged seventy-two years, aneurysm of the aorta. Antimony yellow (XV): male subject, aged sixty-two years, hypertrophied and dilated heart. Naples yellow (XVI): male subject, aged seventy-three years, carcinoma of the bladder. Primuline yellow (XVI): male subject, aged eighty-one years, subdural clot.

The subcutaneous fat of newly born babies and of infants is very pale and arranged in little lobules. That of an infant aged four months was noted as "shell pink"; but as most of the colour was apparently due to the blood present in the sample, it could be assumed that the fat of an infant of this age would normally be almost colourless. I have no notes of when the fat of children may become coloured. However, two infants, aged fourteen months, had fat noted as "pale" and "approaching light buff XV", respectively. It will be seen in the foregoing notes that a boy, aged fourteen years, had moderately richly coloured fat (buff yellow).

When people who have once been fat become greatly emaciated, one finds in some cases in the subcutaneous tissues richly coloured shrunken lobules. Though the fat has been absorbed, the carotenoids associated with it have been left behind and concentrated. Not all emaciated bodies show such a colour, which of course must depend on the amount of carotenoids in the original fat, and in such people there may have been little. It would be of interest to know whether these carotenoids dissolved in the fat can be resorbed and utilized elsewhere, or whether they are permanently thrown out of circulation; also, if they are resorbed, whether they accompany the fat (an excess alone remaining behind) or can be placed in circulation independent of the fat. Doubtless all this is already known.

In 1914 I recorded the following.

A lighthouse keeper on Gabo Island thought that a little extra money could be earned by keeping pigs and fattening them by letting them root out and eat the fairy penguins (*Eudyptula minor*) on the island. In due time they were ready for shipment to Sydney, but were all condemned as being too unsightly to sell, as the fat looked like a linseed poultice.

Penguin fat is deeply coloured. Though it was absorbed, its colouring matter (presumably carotenoids) had apparently been deposited as foreign material amongst the fat.

Reference.

Cleland, J. B. (1914), "Foreign Lipochromes from Penguins Deposited in the Tissues of a Pig", Third Report of the Government Bureau of Microbiology, Sydney, 128.

CAROTENE AND VITAMIN A IN HUMAN FAT.

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IN another article on human fat, Cleland (1954) recorded some of his observations on its colour. He showed me some further samples and suggested that it might be interesting to know their carotene and vitamin *A* content. This has been done for two highly coloured specimens of fat and the results are given in this article.

The samples were extracted with 30% acetone in petroleum ether for one hour, and the total carotenoid pigment in the extract was determined spectrophotometrically at 450 mμ. One aliquot of this extract was chromatographed on a 1:1 mixture of magnesia and celite filter-aid and then eluted with 10% acetone in petroleum ether. The β-carotene in the eluate was determined also at 450 mμ. Another aliquot was chromatographed on a similar column, but was eluted only until the β-carotene was observed to have reached the bottom of the column. All the vitamin *A* was then assumed to have passed into the eluate. The solvent was evaporated off from the eluate, the residue saponified with alcoholic potash, and the vitamin *A* was extracted with ethyl ether and determined by the Carr Price reaction at 620mμ, correction being made for the small amount of β-carotene which was still present.

The results were as shown in Table I.

TABLE I.
Carotene and Vitamin A Content of Two Specimens of Human Fat.

Observation.	Colour (Ridgeway).	
	Naples Yellow (XVI).	Apricot Yellow (IV).
Total pigment (expressed as microgrammes of carotene per gramme of fat) ..	13·0	13·3
β-carotene (*micrognammes per gramme*)	6·1	5·1
Vitamin *A* (microgrammes per gramme)..	2·2	2·0
Total vitamin *A* potency (international units per gramme)	19·0	16·5
Percentage of total pigment due to β-carotene	47·0	38·0
Percentage of total vitamin *A* potency due to β-carotene	54·0	52·0

An examination was also made of a sample of subcutaneous connective tissue, from which most of the fat had been resorbed (the patient having become very emaciated), but in which small patches of yellow pigment remained. The pigment and some associated tissue was dissected out and the pigment was extracted with petroleum ether. The spectral transmission curve of this extract corresponded closely to that of carotene. It would appear, therefore, that in the subcutaneous deposits fat is resorbed more readily than is carotene.

Few figures appear to have been published on the concentration of carotene and vitamin *A* in human fat. Zechmeister and Tuzson (1935) determined the concentrations of four carotenoid pigments in the fat (subcutaneous or omental) of 17 adults who died from various causes. The total carotenoid pigment varied from 0·4 to 15·5 microgrammes per gramme of fat with a mean of 3·7, and the carotene varied from 0·2 to 6·1 microgrammes per gramme with a mean of 1·4. The proportion of the total pigment which was present as carotene varied from 16% to 66% with a mean of 38%. (The remainder consisted of related carotenoid pigments of no known physiological importance to man, but occurring in the food and deposited unchanged in the adipose tissue.) The concentrations of carotene and of total carotenoid pigments in the two highly coloured specimens of fats examined in the present investigation were thus of the same order as the highest values recorded by Zechmeister and Tuzson. Clausen (1942-1943) reported that the fat of one man contained approximately 800 international units of vitamin *A* per 100 grammes, and that in two other men 41% of the total vitamin *A* potency of the fat was due to carotene. These values were one-third to one-half those found for carotene and preformed vitamin *A* in the present investigation.

It would appear that carotene is resorbed with some difficulty from the subcutaneous fat deposits. Furthermore, it is doubtful whether it can be utilized by the body even if it is resorbed. As far as is known, the only tissue in the body which is capable of converting carotene into vitamin *A* is the mucosa of the small intestine. Any digested carotene which escapes conversion to vitamin *A* at this site and is subsequently deposited, as for example in the liver or the adipose tissue, apparently will thereafter be lost to the body. If this postulate is correct, the colour of human fat, while of general interest, has but little physiological significance.

References.

CLAUSEN, S. W. (1942-1943), "Absorption and Storage of Vitamin A in Tissues", "Harvey Lectures", 38: 199.
CLELAND, J. B. (1954), "The Colour of Human Fat", M. J. AUSTRALIA, 588.
ZECHMEISTER, L., and TUZSON, P. (1935), "Biochemical Contribution to the Study of the Pigments of Human Fat", *Bull. Soc. chim. biol.*, 17: 1110.

THE USE OF MUSCLE RELAXANTS IN ELECTRO-CONVULSIVE THERAPY.

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Perth.

FOR some time it has been recognized as desirable to diminish the violence of muscular reactions produced by electro-convulsive therapy. Some patients, owing to organic disease, have been denied the use of electro-convulsive therapy when it has been indicated for the mental condition. This denial has been due to undue risk resulting from the extra load consequent on the severe tonic and clonic contractions produced by the electro-convulsive therapy. These patients include those with orthopædic disabilities, such as fracture or gross deformity, elderly patients with poor cardiac reserve or osteoporosis, and patients with active cardio-vascular disorder, such as coronary or hypertensive disease. Patients with myxœdema and cardiac decompensation and patients with severe effects of dehydration or poor nutrition are also undesirable subjects for routine electro-convulsive therapy.

With routine electro-convulsive therapy, despite all precautions of posture or restraint, occasional vertebral injury occurs. Indeed, such a variety as fracture of the humerus, femur or clavicle has been reported.

In an attempt to avoid these complications and to extend treatment to subjects suitable for routine electro-convulsive therapy, curare was used.

The technique employed was as follows: (i) A preliminary dose of atropine sulphate (1/100 grain) was given half to one hour before treatment (to eliminate increased salivation or cardiac arrest). (ii) An intravenous injection of "Pentothal Sodium" solution (strength one gramme in 20 cubic centimetres) was given; four to eight cubic centimetres were injected fairly rapidly. (iii) Curare was injected intravenously from a separate syringe. (iv) An electrical stimulus was applied. (v) "Prostigmin" was given intravenously. (vi) Artificial respiration was carried out with the usual anæsthesia mask bag.

With curare the following unpleasant side-effects occurred on a significant number of occasions: tachycardia, cyanosis, tetany, laryngeal spasm, and on one occasion very pronounced over-secretion, necessitating measures to avoid asphyxia and resulting in mild atropine poisoning of a transient order.

With curare post-operative resuscitation occupied an extended period, an average of fifteen minutes per patient being required with each treatment. The method did prevent fractures, did enable the treatment to be continued in cases in which fracture had probably resulted from electro-convulsive therapy, and did extend the treatment to patients considered "bad risks" for routine electro-convulsive therapy.

In the cardiac group it was considered that curare did little to reduce the risk from electro-convulsive therapy, as these patients exhibited cyanosis, obvious pulse irregularities and exhaustion after the procedure. The time factor in resuscitation rendered the procedure impracticable for extensive use.

In turn the curare-like drugs were employed in an effort to solve these problems. Those used were decamethonium bromide, "Flaxedil" (tri-diethylaminoethoxybenzene iodide), "Scoline" and "Brevidil E".

The technique employed was similar in each case; a preliminary dose of atropine sulphate (1/100 grain) was given, a sleep-dose of "Pentothal Sodium" (usually two to six cubic centimetres of a one gramme in 20 cubic centimetres solution) was administered, the relaxant drug was injected intravenously from a separate syringe but through the same needle, and electrical stimulus and resuscitation were employed. Later in the series it was found helpful to oxygenate the patient's lungs after administration of the relaxant and application of the electrical stimulus.

"Flaxedil" was discarded despite its advantage in that its action is reversed by "Prostigmin". Its relaxant properties appeared unpredictable: occasionally a major fit occurred despite administration of "Flaxedil" in estimated full relaxant dosage. The post-operative resuscitation time varied in the series from one to forty-five minutes.

Decamethonium likewise was discarded because of the relatively prolonged resuscitation period on occasion, and also because cyanosis appeared more frequently with its use. Again, tolerance to this drug increases rapidly with successive administrations.

"Scoline" was found very suitable, but "Brevidil" requires as a rule an even shorter post-operative resuscitation period. "Scoline" seems to suit some patients, but "Brevidil" a somewhat wider group.

The routine technique now adopted is as follows. (i) A preliminary dose of atropine sulphate (1/100 grain) is given forty-five to sixty minutes before treatment. (ii) "Pentothal" is given intravenously and fairly rapidly in minimal dosage to ensure sleep. (iii) A pause is observed to allow the thiopentone to become effective. (iv) A relaxant solution is given from a separate syringe through the same needle, and given rapidly; 100 milligrammes of "Brevidil" used as a routine give adequate relaxation. The effect of "Brevidil" is extremely rapid; it may be observed by muscular twitchings, slight to moderate in degree, and affecting notably the lips, eyelids and lower facial muscles, and also the smaller groups of the forearms and fingers. Occasionally pronounced flexion of the elbows occurs, and less frequently movements of the lower limbs are noticeable. These muscular phenomena follow injection almost immediately, and are followed by complete muscular relaxation and respiratory arrest. (v) Oxygenation is carried out at this stage, with 100% oxygen, prior to the application of the electrical stimulus. (vi) An electrical stimulus is applied; almost uniformly some masseter tension is produced, followed by the phenomena of "after-discharge". Convulsive phenomena occur in a limb occluded by an arterial tourniquet prior to injection of the relaxant drug. The sphygmomanometer cuff is convenient, especially the less cumbersome "dial" type. (vii) Post-operative resuscitation is carried out with 100% oxygen. In most patients swallowing appears before resumption of respiration. Oxygenation is continued until active intercostal respiratory movement is established, usually within one to four minutes. Oxygenation may be carried out by insufflation or by the use of the usual anæsthetic mask-bag combination.

In patients without moderate to severe cardiac disability the dosage of "Brevidil" may be reduced from 100 milligrammes to allow of a controlled "major" convulsion. In cardiac patients complete relaxation appears advisable.

The technique should at all times be carried out by an anæsthetist experienced in the procedure. Occasional moderately severe collapse has been observed. The procedure is not one to be undertaken by the electro-convulsive therapy operator alone.

On two occasions the relaxant drug was injected prior to the thiopentone. This led to a distressing train of symptoms, the memory of which was not obliterated entirely by the convulsion. It was felt that curarization without the previous administration of thiopentone was unjustifiable.

With "Brevidil", laryngeal spasm has been observed on only one occasion; with "Scoline" likewise once only. The condition was accompanied by severe cyanosis, but was readily controlled. With curare, laryngeal spasm occurred on several occasions in a smaller series of treatments.

Indications for Muscle Relaxants in Electro-Convulsive Therapy.

In a series of over 800 treatments the following circumstances were regarded as requiring the use of relaxant technique: (*a*) coronary disease or poor cardio-respiratory reserve; (*b*) advanced age in patients with poor cardiac reserve and/or osteoporosis; (*c*) severe kyphosis; (*d*) arteriosclerosis or hypertension; (*e*) disk disorders, especially in the lumbar or cervical region; (*f*) the recent performance of a major surgical procedure, especially in the abdomen; (*g*) advanced age in patients with poor nutrition; (*h*) suspected vertebral injury from routine electro-convulsive therapy; (*i*) severe apprehension or "difficulty" on the part of the patient; (*j*) hæmatemesis or a recent history thereof; (*k*) other orthopædic disabilities—deformities, or those of traumatic origin; (*l*) previous cerebral vascular accident; (*m*) great muscularity of the subjects, especially those with a long, spare frame; (*n*) less commonly, spontaneous pneumothorax (one case) and myxœdema (one case).

This relaxation technique is the result of observations on and modifications of anæsthetic technique by Dr. E. R. Beech, who administered the great majority of anæsthetics in the series. The procedure has been reduced in time to little longer than routine electro-convulsive therapy. Post-convulsive behaviour difficulties have disappeared and pre-operative apprehension has been much diminished.

Many patients otherwise regarded as "poor risks" or excluded from electro-convulsive therapy have become acceptable for treatment. The group especially benefited have been the elderly, specially those with cardiac disability or pronounced osteoporosis, arteriosclerotics, hypertensives and patients with poor general condition. (The oldest patient in the series was a female, aged seventy-nine years, who has recovered from agitated melancholia and has been well for over six months since treatment.) Melancholia in elderly patients is now treatable and the general response to therapy good. No alarming reactions have occurred in any patient such as would determine discontinuance of therapy.

Summary.

1. Muscle relaxants allow of extension of the scope of electro-convulsive therapy.

2. The margin of safety with "poor risk" patients is increased by relaxant technique.

3. The succinyl group of relaxants is superior to curare; the time factor is reduced and complications are fewer.

4. Oxygenation is advisable after injection of the relaxant and prior to the application of the electrical stimulus.

5. The use of a relaxant without the previous administration of thiopentone to sleep dose is unpleasant and undesirable.

6. The technique requires the services of an anæsthetist experienced in the procedure.

7. The preliminary administration of atropine is advisable.

8. "Brevidil" or "Scoline" is a suitable relaxant.

9. Complete physical examination is essential in all psychiatric cases.

10. Results are comparable with those obtained by routine electro-convulsive therapy, with elimination of post-convulsive behaviour difficulties and probably a less severe memory defect after a series of treatments.

Conclusion.

Over 800 treatments have been given without any major anæsthetic difficulty. The difficulties with the technique in private practice are the necessity for the anæsthetist and therapist to arrange mutually convenient appointments, and the increase in cost of treatment to the patient.

A SUMMARY OF RECENT FINDINGS IN INTRAVASCULAR TREATMENT OF POST-TRAUMATIC SHOCK AND THE RELATIVE VALUE OF ISOTONIC SODIUM CHLORIDE AND 5% GLUCOSE SOLUTIONS IN SUCH CONDITIONS.

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THE treatment of post-traumatic shock conditions has been dominated for a long time by the view that blood transfusion forms the best intravascular fluid therapy. Progress in clinical shock treatment therefore has been influenced mainly by measures which deal with the problem of inevitable shortages in blood under a number of circumstances. It has been found that it is not always necessary to use whole blood in such treatments, but that its derivative, plasma, is often equally effective in restoring a failing circulation after serious trauma, even in cases involving blood losses of up to 3·5 litres (Grant, 1945).

It has been possible to produce large amounts of stable plasma preparations from human blood, and large stocks of plasma have contributed significantly to the efficiency of modern shock treatment. It has, however, become increasingly clear that with the possibility of future calamities such stocks will prove to be highly insufficient. It is furthermore known that the injection of pooled plasma preparations is sometimes complicated by the occurrence of homologous serum hepatitis (Albrecht *et alii*, 1953; Murphy *et alii*, 1953). This complication, which apparently cannot be easily overcome, and the shortage problem have induced a world-wide search for suitable "plasma volume expanders" (Hartman *et alii*, 1953; Hammarsten *et alii*, 1953; Raisz, 1952; Berson *et alii*, 1953; MacCarthy *et alii*, 1952; Hyde *et alii*, 1953).

It is not quite clear why the well-known difficulties inherent in the treatment of shock in areas where blood and plasma are medical luxuries have not led to investigations into treatment of such conditions with other more easily obtainable fluids at a much earlier stage. On the contrary, the liberal use of plasma and blood in many large centres for the treatment of diseases may have contributed to the following beliefs:

1. Blood and plasma are no longer those highly expendable materials of human origin which may be used only under the strictly limiting indications for life-saving therapies.

2. Many important aspects in the diagnosis of shock syndromes and consequently of their treatment can be overlooked or even ignored because blood and/or plasma transfusions will "automatically" solve such problems.

3. If blood and plasma do not solve these problems and patients die, failures in the treatment of shock in which blood and/or plasma have been used can be explained by accepting such vague expressions as "irreversibility of shock" or "incompatibility with life of damage to the body before treatment was started".

It will be clear that such concepts are inhibiting progress in the necessary understanding of pathogenic factors in shock. Our incomplete information about the composition of blood and even of plasma and of the immunological and pharmacological consequences after their injection into living organisms does not justify their use without strict indications. The discovery of an increasing number of blood subgroups (Stratton, 1952) and of plasma transfusion reactions (Crosby *et alii*, 1952; Moore, 1953; Lake *et alii*, 1953*a*; Lake *et alii*, 1953*b*; Gitlin, 1953; Blewett *et alii*, 1953; Brown, 1953; Dameshek *et alii*, 1953; Mason *et alii*, 1947) will certainly restrict the use of blood and plasma transfusions to a progressively decreasing number of patients.

With the necessity to find means to treat shock without either blood or plasma, the time seems to have arrived to concentrate efforts not only on the problem of "substitutes" for blood and plasma, but also on the physiopathology of shock itself.

It is understandable that in this search clinicians, justifiably impressed by the excellent results achieved with blood and plasma transfusions in practical shock treatment, will concentrate their attention mainly on intravascular therapy with the use of substances which duplicate the intravascular hæmodynamic properties of plasma. Concepts of the permeability of vessel walls and of the physical properties of plasma proteins have consequently led to experiments with the use of water-binding macromolecular substances of various origins. Gum acacia, for instance, was tested during the first World War, but discarded (Studdiford, 1937). Dextran, polyvinylpyrrolidon and gelatin preparations compete for the first place as plasma volume expanders (Hartman *et alii*, 1953; Raisz, 1952; Berson *et alii*, 1953; MacCarthy *et alii*, 1952; Hyde *et alii*, 1953; Hammarsten *et alii*, 1953). It seems that potential disadvantages or dangers connected with antigenic properties of macromolecular substances and other unwanted reactions—as, for example, "storage-phenomena" (Haurowitz, 1950; Kabat, 1953; MacNeil *et alii*, 1951; Hartman, 1951; Leusen *et alii*, 1953) are not interpreted in the same way by immunologists, bacteriologists and those who regularly give intravascular infusions to patients. The situation at the moment, however, is such that the intravascular administration of these "plasma volume expanders" is justified if other and better treatment is not possible, even if the life of the patients suffering from shock must be bought at the eventual cost of sometimes permanent damage to important organs or systems.

With the study of intravascular hæmodynamics as one of the cardinal features in the treatment of shock it must be realized that the solution of the problem is a matter not only of the quality and quantity of the fluid injected into the vascular tree, but also one of vascular functions. There is increasing evidence that activity of peripheral vessels is essential for the proper functioning of the circulation as a whole (Fuller *et alii*, 1952; Zweifach, 1948; Lee *et alii*, 1951; Chambers *et alii*, 1944; Zweifach *et alii*, 1949; Zweifach *et alii*, 1944). The permeability of vessel walls may be influenced by pre-capillary and post-capillary vessel activities, and there is a suggestion that disorders in vessel functions can be treated (Fritz *et alii*, 1951; Paterson *et alii*, 1952). With regard to the permeability of vessel walls, it is known that intravascularly circulating plasma albumin regularly leaves the vascular tree at certain spots in the body under normal conditions, to return to it via other routes—as, for instance, lymph vessels (Fine and Seligman, 1943; Fine, Seligman and Frank, 1943; Courtice *et alii*, 1951; Courtice *et alii*, 1953; Hubay *et alii*, 1951; Ariel, 1951; Wasserman *et alii*, 1951; Sterling, 1951; Yuile *et alii*, 1951).

The proper treatment of shock must assure not only the regular supply of essential materials to the threatened body cells, but also the removal of unwanted products from them. It can be demonstrated microscopically in rats that part of this removal takes place through sometimes actively functioning lymph vessels (Hissink, 1951). Courtice and associates showed in 1953 that intraperitoneally injected

erythrocytes in rabbits and other animals could be recovered in the thoracic duct shortly after the injections. These facts indicate that supply and removal mechanisms operate in many sections of the "internal environment" (Claude Bernard, quoted by Duncan, 1942) inside but also outside the known transport channels.

The study of the "internal environment" which surrounds the body cells is necessary for the understanding of post-traumatic physiology. The introduction of stress and adaptation reactions (Selye, 1950) underlines the importance of the fact that the post-traumatic condition no longer can be treated by methods which are only aimed to force it into the "boundaries" of the physiological "rest" condition. The appreciation that the post-traumatic condition is a temporary one with changing requirements associated with one of the principles of living material—namely, with reactions made in adaptation to the new situation—may allow a new approach to the treatment of shock and other diseases.

It is along these lines that the treatment of shock will be discussed in this report. Starting from the fundamental need for water, the natural medium for biological reactions, in post-traumatic conditions with dehydration, it is of the greatest importance to know which of the substances with which water is usually injected are necessary and which are not wanted. The substances usually administered intravascularly are sodium chloride and glucose solutions.

Experimental Investigation.

Experiments were undertaken to study effects of the various "routine solutions" on post-traumatic conditions in laboratory animals. It was considered essential to base conclusions on mortality rates, rather than to rely on the interpretation of findings such as pulmonary œdema, heart failure, erythrocyte counts, hæmatocrit values *et cetera* in surviving animals.

Although there may be agreement on the theoretical definition of one of the cardinal features in shock—namely, the disparity between vascular capacity and its content—the clinical diagnosis of shock is often very difficult, especially in the early phases. It therefore appeared convenient to examine the effects of the various fluids on dehydration first before their effects in shock could be discussed. The problem then was to find that type of trauma with blood loss in rats which could be standardized and which, if untreated, would develop into dehydration of sufficiently long duration (at least four hours) to allow effective "hydration" treatment to inhibit the development of shock syndromes. Effective and ineffective treatments would then be reflected by differences in mortality rates. This meant that untreated animals had to come into a state of shock at a late stage after the trauma, while death invariably had to follow at least five to six hours after the operations. Such a condition was finally found.

White male and female rats of Wistar origin, weighing between 150 and 200 grammes, were anæsthetized with ether and longitudinal laparotomies were performed. Blood was then removed (one millilitre per 50 grammes of body weight from the inferior *vena cava*) while the appendices were scalded for three seconds in water at 75° C. The abdominal cavities were closed in two layers, and the rats were returned to their cages without food or drinking water. The treatments instituted were as follows.

The injured and bled animals received intravascular injections with the various solutions two, four and six hours respectively after the operations. These injections were given within ninety seconds into the left femoral, the right femoral and one of the jugular veins respectively. The speed with which the injections were given was thought to increase the possibility of complications such as pulmonary œdema *et cetera*, which interfere significantly with the final outcome. All animals received three injections of five or six millilitres of fluid, according to their weights. The types of fluid used were as follows: (i) normal saline (0·9% sodium chloride solution); (ii) 0·25% sodium chloride solution in combination with 5% glucose solution; (iii) normal saline in combination with 5% glucose solution. The mortality rates were studied during the first twenty-four hours after operation, while survivals after twenty-four and forty-eight hours were also recorded. One hundred and nine rats were used in these experiments.

Results.

1. The results obtained with male rats which received normal saline as compared with those which received 0·25% sodium chloride *plus* 5% glucose solution are shown in Table I. The conclusion is that normal saline therapy with a mortality rate of 31% during the first twenty-four hours after operation is superior to the injection of 0·25% sodium chloride *plus* 5% glucose solution, after which the mortality rate was 100% during that period. Statistics for this group showed a *P* factor of less than 0·001.

Table I.

Group.	Male Rats Treated with 0·9% Saline Solution.[1]		Male Rats Treated with 0·25% Saline Solution *plus* 5% Glucose Solution.[2]	
	Survival for One Day or More.	Death Within One Day.	Survival for One Day or More.	Death Within One Day.
Group I ..	1	1	0	2
Group II ..	2	1	0	3
Group III ..	2	1	0	3
Group IV ..	3	1	0	4
Group V ..	3	1	0	4
Totals ..	11	5	0	16

[1] Mortality rate with 0·9% saline solution, 31%.
[2] Mortality rate with 0·25% saline solution *plus* 5% glucose solution, 100%.

2. The results obtained with female rats which received similar types of treatment may be studied in Table II. As in the first group, normal saline therapy, with a mortality rate of 26% during the first twenty-four hours after operation, is superior to treatment with 0·25% sodium chloride *plus* 5% glucose solution, after which the mortality rate was 60% for the same period. Statistics for this group showed a *P* factor of less than 0·05.

Table II.

Group.	Female Rats Treated with 0·9% Saline Solution.[1]		Female Rats Treated with 0·25% Saline Solution *plus* 5% Glucose Solution.[2]	
	Survival for One Day or More.	Death Within One Day.	Survival for One Day or More.	Death Within One Day.
Group I ..	3	1	1	2
Group II ..	2	1	2	1
Group III ..	2	1	0	3
Group IV ..	2	1	1	2
Group V ..	3	0	2	1
Group VI ..	2	1	1	2
Totals ..	14	5	7	11

[1] Mortality rate with 0·9% saline solution, 26%.
[2] Mortality rate with 0·25% saline solution *plus* 5% glucose solution, 60%.

3. The results obtained with male rats which received normal saline or normal saline *plus* 5% glucose solution may be studied in Table III. The conclusion is that here also the normal saline solution is superior to a combination of normal saline and 5% glucose solution. Mortality figures for the first twenty-four hours after operation were 38% and 72% respectively. Statistics for this group showed a *P* factor of less than 0·05.

In all these animals no signs of pulmonary œdema or otherwise unfavourable reactions on the rapid injections were observed.

Discussion.

The conclusions concerning the superiority of normal saline solution over 0·25% sodium chloride *plus* 5% glucose solution and over normal saline *plus* 5% glucose solution in the treatment of post-traumatic dehydration (shock) in rats may not hold for similar treatment in human beings. For the same reasons it does not seem justifiable to conclude that the administration of glucose solution in such treatment in humans also will decrease the chances of survival.

TABLE III.

Group.	Male Rats Treated with 0·9% Saline Solution.[1]		Male Rats Treated with 0·9% Saline Solution *plus* 5% Glucose Solution.[2]	
	Survival for One Day or More.	Death Within One Day.	Survival for One Day or More.	Death Within One Day.
Group I ..	1	2	3	0
Group II ..	3	1	2	2
Group III ..	1	3	0	4
Group IV ..	4	0	0	6
Group V ..	2	1	1	4
Totals ..	11	7	6	16

[1] Mortality rate with 0·9% saline solution, 38%.

[2] Mortality rate with 0·9% saline solution *plus* 5% glucose solution, 72%.

However, from a study of shock treatment in human beings with the use of a water-binding casein hydrolysate, capain (Hissink, 1948, 1950), it may be seen that a certain parallelism exists between the results obtained in humans and in animals. It was found, for example, that if the hydrolysate was diluted with normal saline the mortality rates were much lower than if the hydrolysate was given in 5% glucose solution. Normal saline and glucose solution as diluents for the casein hydrolysate were chosen in a random manner, and blood was given only if it was considered necessary. Most intravascular treatments were carried out over a period of four to eight hours, while a number of patients were treated for longer periods. It appeared possible to select the patients who received glucose infusions as part of their treatment in a group of 18 cases (Figure I).

Figure I shows that the cases have been arranged according to the amounts of glucose given in ascending order, and starting from 1500 millilitres per patient. The mortality rate in this group is about 60%, and much higher than the 33% of the total of 67 shock patients studied. Section 1, dealing with patients who received less than 2000 millilitres of 5% glucose solution, shows a mortality rate of about 33%, and Section 2, dealing with patients who received 2000 millilitres of 5% glucose solution or more, shows a mortality rate of more than 80%. It is possible, of course, that the more serious shock cases have been concentrated in Section 2, and the number of blood transfusions given supports such a view. However, the chances of injection with large volumes of the two solutions were even for every patient. It may be seen that in this section the amounts of saline solution did not differ from those given in Section 1. It seems, therefore, that there is a relationship between the high mortality rate of 80% and the large amounts of 5% glucose solution given. This is in agreement with the results obtained in the rat experiments, in which animals receiving glucose as part of the treatment showed the highest mortality rates. However, it cannot be concluded from this figure that glucose was not necessary for the survival of the patients, as was found in the rat studies.

In order to obtain information concerning the effects of various amounts of normal saline in these forms of treatment for shock, patients who received only saline solution (and blood) as part of their treatment were selected in a group of 33 cases and, as in the first group, these cases have been arranged according to the amounts of saline given in ascending order, starting from infusions with 1500 millilitres per patient (Figure II).

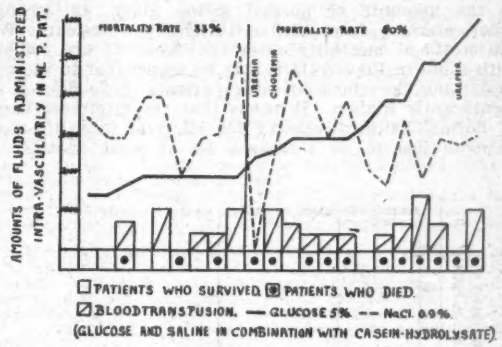

FIGURE I.

Fluid therapy: patients with post-traumatic shock (dehydration). Amounts of glucose (5% solution) in ascending order.

It may be seen that this group shows a quite different picture. The mortality rate was about 16%, most of the fatalities being concentrated not in the sections dealing with patients who received the larger volumes, but in the section dealing with patients who received less than 2000 millilitres each. It is likely that also the less serious shock cases have been included in this group; but in more than one-third of the cases blood transfusions were given. The very low mortality figure of 16% may allow two conclusions to be drawn: (i) Glucose was not essential for survival in a significant number of these cases. (ii) A

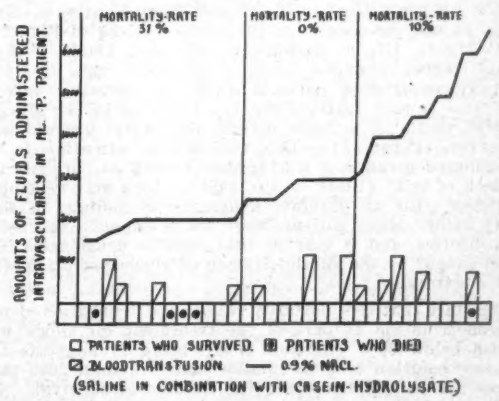

FIGURE II.

Fluid therapy: patients with post-traumatic shock (dehydration). Amounts of 0·9% saline, in ascending order.

minimum amount of about 2000 millilitres of normal saline (with hydrolysate) was essential for survival. These conclusions are in agreement with the results observed in the rat experiments, in which the normal saline solution proved to be associated with the lowest mortality rates, while in one group of animals the use of glucose and saline combinations was even followed by a mortality rate of 100%.

This important finding made it necessary to find out whether the disadvantages of administering glucose solution in the treatment of shock could be counterbalanced by the administration of increased amounts of normal saline. To study the effects of administration of glucose on the sectional mortality figures, patients who received saline and glucose solution as part of the treatment of shock were selected in a third group (Figure III).

It may be seen that this time the patients receiving both saline and glucose solution have been arranged according to the amounts of normal saline given, in ascending order, starting from 1500 millilitres per patient. When the sectional mortality rates in Figure II are compared with those in Figure III it may be stated that in the group containing the glucose-treated patients these figures were significantly higher. It seems that the minimum amount of normal saline necessary for survival in saline-treated patients has to be increased by at least another 1000

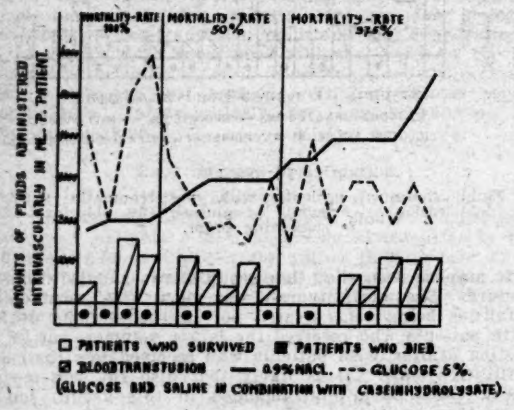

FIGURE III.

Fluid therapy: patients with post-traumatic shock (dehydration). Amounts of 0·9% saline, in ascending order.

millilitres per patient in the glucose-treated patients. Even then, as may be seen from the third sections in Figure II and Figure III, a significant difference exists between saline-treated patients (with a mortality rate of 10%) and glucose-treated patients (with a mortality rate of 37·5%). It may furthermore be seen that in the glucose-treated group of patients serious degrees of uræmia were observed (Figure I). This fact directs attention to the possible occurrence of a syndrome known as "uræmia due to lack of salt" (Black *et alii*, 1951), which may develop in patients with an absolute deficiency of sodium in their body fluids. Many patients were not deficient in salt before the injuries, and it may be that relative deficiencies have been caused by the administration of glucose solution without electrolytes.

The fact that the mortality rates of patients treated with glucose solution as part of the treatment for shock were never below 33% (Section 1 of Figure I) suggests that glucose solution also in smaller amounts than 2000 millilitres per patient decreased the chances of survival. This is in agreement with the results observed in the rat experiments, in which it was found that if glucose was added to normal saline given by the intravascular route the mortality rates increased significantly when compared with those among animals which received normal saline only.

It does not follow from these data that the normal saline solution is the best electrolyte mixture in the intravascular treatment of post-traumatic conditions with serious dehydration or shock; but it is superior to others on the list of "routine fluids". There is, furthermore, convincing evidence that the combination of 0·25% sodium chloride solution and 5% glucose solution in one solution is dangerous, and it should be discarded from the list of "routine solutions".

The parallelism between the effects of normal saline in the treatment of shock in human beings and in the treatment of post-traumatic dehydration (shock) in rats does not indicate that shock conditions in humans can be treated with normal saline alone. It is likely that in this treatment the casein hydrolysate capain, with its water-binding properties and "cortisone-like" activities (Hissink, 1953*a*, 1953*b*), has contributed significantly to the good results. There is, however, increasing evidence that more attention is being paid to the value of saline solution in the treatment of shock (Parkins *et alii*, 1952). Hoytink demonstrated remarkable results in 1935 in the treatment of hæmorrhagic shock with the use of intravascular injections of normal saline.

In this regard it must be stated that the successes which have been observed with mixtures of capain and normal saline in the treatment of shock in human beings do not necessarily mean that similar results can be expected from "Amparon", which contains capain, 0·2% sodium chloride solution, 3% glucose solution, and 0·02% potassium chloride solution.

Another interesting feature connected with the importance of sodium chloride solution in the treatment of shock is the difference which was found in the averages of the total amounts of fluid administered in the various groups of patients. While glucose-treated patients received an average of about 6600 millilitres each, and those who survived in this group (40%) received at least more than 4000 millilitres per patient, the saline-treated patients showed an average intake of about 3300 millilitres per person. This suggests that the recovery in glucose-treated patients was much slower than in saline-treated patients. It is probable that slower rates of recovery are associated with increased danger of over-hydration, pulmonary œdema *et cetera*. It may be interesting to know that patients who survived in the glucose-treated group and who were treated for thoracic abnormality did not show signs of pulmonary complications after the infusions. The fact that these patients received most of the fluid in the form of normal saline (with hydrolysate) indicates that the danger of pulmonary œdema after such injections is not so great as is sometimes thought. Pulmonary œdema was also not found in the rats which received large and rapid injections of normal saline. Similar conclusions have been drawn by Grant and Reeve (1951), who reported that in the treatment of post-traumatic conditions the occurrence of pulmonary complications might be due to lack of sufficient amounts of water and sodium chloride.

Concepts of the development of pulmonary œdema after the intravascular administration of fluid in the treatment of post-traumatic conditions have been influenced for too long a time by experiences in the treatment of patients with cardiac failure (Sarnoff *et alii*, 1952). The pulmonary circulation, a derivative of the branchial circulation (Mott, 1951), is governed by laws and reflexes other than those which govern the systemic circulation (Mackay, 1950; Gamble *et alii*, 1951).

The explanation of the fact that sodium chloride solution proved to be of great importance in the treatment of shock after trauma may be found in modern concepts of mineral metabolism.

It is known that injuries to living organisms are associated with tendencies to retain water and sodium ions, at least temporarily (Hayes and Coller, 1952). Cuthbertson (1942) demonstrated that there is an increase in the urinary output of potassium ions after trauma, which most probably originate from sources in the injured areas, but also from intracellular compartments outside such areas. It has furthermore been found in experiments with tissue cultures that damage to the cells or alterations in environmental conditions are associated with increases in the concentration of potassium in the media, while these tissues at the same time increased their sodium uptakes (Mudge, 1951). Similar happenings have been reported *in vivo* (Fuhrman *et alii*, 1951; Elman *et alii*, 1952).

It is understandable that in post-traumatic conditions associated with shock, in which many body cells are affected in various ways, extracellular fluids may become deficient in sodium ions, while potassium concentrations may sometimes become dangerously high. Such states of affairs may be related to the inevitable catabolic reactions (Campbell *et alii*, 1953; Schwartz, 1953; editorial, 1953) which take place after trauma. Adrenocortical activities are probably also involved (Campbell *et alii*, 1953). With regard to the increase in potassium concentrations in the extracellular fluids after trauma, it seems advisable to abstain from administering potassium-containing fluids in such conditions if renal function has not recovered sufficiently (Elman *et alii*, 1952).

Summary.

After a discussion of certain principles involved in the intravascular treatment of shock it is demonstrated from experiments on rats that normal saline (0·9% sodium chloride) solution is superior to 0·25% sodium chloride solution, 5% glucose solution, and a combination of normal saline and 5% glucose solution in the treatment of post-traumatic conditions with serious dehydration and blood loss. These results are discussed and compared with similar effects of the administration of saline and glucose in the treatment of shock in human beings, to whom a water-binding casein hydrolysate, capain, was given with the solutions.

Stress is laid upon the danger of combining 0·25% sodium chloride solution and 5% glucose solution in one solution for such treatment. It is concluded that the administration of glucose-containing solutions in the treatment of shock decreases the chances of survival.

The physiological properties of sodium and potassium in post-traumatic conditions and the character of pulmonary œdema in such conditions are discussed.

References.

ALBRECHT, R. M., KORNS, R. F., BRADENKOPF, W. G., GOODMAN, M. B., LOCKE, F. B., and MARKS, V. (1953), "Serum Hepatitis Apparently Acquired from Irradiated Plasma", *J.A.M.A.*, 152: 1423.

ARIEL, I. M. (1951), "The Internal Balance of Plasma Proteins in Surgical Patients", *Surg., Gynec. & Obst.*, 92: 405.

ARIEL, I. M. (1951), "Effects of a Waterload Administered to Patients during the Immediate Postoperative Period. The Hypotonic Syndrome", *Arch. Surg.*, 62: 303.

BERSON, S. A., YALOW, R. S., POST, J., WISHAM, L. H., NEWERLY, K. N., VILLAZON, M. J., and VASQUEZ, O. N. (1953), "Distribution and Fate of Intravenously Administered Modified Human Globin and its Effects on Blood-volume Studies, Utilising I^{131} Tagged Globin", *J. Clin. Investigation*, 32: 22.

BLEWETT, M. W., DRURY, A., and MACKAY, M. (1953), "Albumin, an Unsuspected Physiological Activity", *Nature*, 172: 79.

BROWN, J. W. (1953), "Safer Blood Transfusion", *Blood*, 8: 182.

BLACK, A. B., and LITCHFIELD, J. A. (1951), "Uræmia Complicating Low Salt Treatment of Heart Failure", *Quart. J. Med.*, 20: 149.

CAMPBELL, R .M., SHARP, G., BOYNE, A. W., and CUTHBERTSON, D. P. (1953), "Cortisone and the Metabolic Response to Injury", *Nature*, 172: 158.

CHAMBERS, R., ZWEIFACH, B. W., and LOWENSTEIN, B. E. (1944), "The Peripheral Circulation during the Tourniquet Shock Syndrome in the Rat", *Ann. Surg.*, 120: 791.

COURTICE, F. C., HARDING, J., and STEINBECK, A. W. (1953), "The Removal of Free Red Blood Cells from the Peritoneal Cavity of Animals", *Australian J. Exper. Biol. & M. Sc.*, 31: 215.

COURTICE, F. C., and MORRIS, B. (1953), "The Effects of Diaphragmatic Movement on the Absorption of Protein and Red Cells from the Pleural Cavity", *Australian J. Exper. Biol. & M. Sc.*, 31: 227.

COURTICE, F. C., and STEINBECK, A. W. (1951), "Absorption of Protein from the Peritoneal Cavity", *J. Physiol.*, 114: 336.

CROSBY, W. H., and STEFANINI, M. (1952), "Pathogenesis of the Plasma Transfusion Reaction with Especial Reference to the Blood Coagulation System", *J. Lab. & Clin. Med.*, 40: 374.

CUTHBERTSON, D. P. (1942), "Post-Shock Metabolic Response", *Lancet*, 1: 433.

DAMESHEK, N., and NEBER, J. (1950), "Transfusion Reactions due to a Plasma Constituent of Whole Blood", *Blood*, 8: 129.

DUNCAN, G. G. (1942), "Diseases of Metabolism", 55.

EDITORIAL (1953), "Protein, Calories and Trauma", *The Glaxo Volume*, 4: 32.

ELMAN, R., SHATZ, B. A., KEATING, R. E., and WEICHSELBAUM, T. E. (1952), "Intracellular and Extracellular Potassium Deficits in Surgical Patients", *Ann. Surg.*, 136: 111.

FINE, J., and SELIGMAN, M. (1943), "Traumatic Shock. A Study of the Problem of Lost Plasma in Hemorrhagic Shock by the Use of Radioactive Plasma", *J. Clin. Investigation*, 22: 285.

FINE, J., SELIGMAN, M., and FRANK, H. A. (1943), "Traumatic Shock. An Experimental Study including Evidence against the Capillary Leakage Hypothesis", *Ann. Surg.*, 118: 238.

FRITZ, J., and LEVINE, R. (1951), "Action of Adrenal Cortical Steroids and Nor-Epinephrine on Vascular Responses of Stress in Adrenalectomized Rats", *Am. J. Physiol.*, 165: 456.

FUHRMANN, F. A., and CRISMON, J. M. (1951), "Early Changes in Distribution of Sodium, Potassium and Water in Rabbit Muscles following Release of Tourniquet", *Am. J. Physiol.*, 166: 424.

FULLER, J., TAYLOR, B. E., CLAGETT, O. T., and WOOD, E. H. (1952), "Blood Pressure in the Aorta during Resection and Repair of Coarctation of the Aorta", *J. Lab. & Clin. Med.*, 39: 10.

GAMBLE, J. E., and PATTON, H. D. (1951), "Pulmonary Edema and Hemorrhage Induced by Hypothalamic Lesions in Rats", *Science*, 113: 626.

GITLIN, D. (1953), "The Immunochemical Heterogenicity of Human Plasma-B-Lipo-Protein", *Science*, 117: 591.

GRANT, R. T. (1945), "Investigations of War Wounds. Traumatic Shock", "Interim Report on the Work of the British Traumatic Shock Research Team".

GRANT, R. T., and REEVE, E. B. (1951), "Observations on the General Effects of Injury in Man", Medical Research Council of the Privy Council, Special Report Series, Number 277: 308.

GUEST, M. MASON, MURPHY, R. C., BODNAR, S. R., WARE, A. G., and SEEGERS, W. H. (1947), "Physiologic Effects of a Plasma Protein. Blood Pressure, Leucocyte Concentration, Smooth and Cardiac Muscle Atrophy", *Am. J. Physiol.*, 150: 471.

HAMMARSTEN, J. F., HELLER, B. J., and v. EBERT, R. (1953), "The Effects of Dextran in Normovolemic and Oligemic Subjects", *J. Clin. Investigation*, 32: 340.

HARTMAN, F. W. (1951), "Tissue Changes following the Use of Plasma Substitutes", *Arch. Surg.*, 63: 728.

HARTMAN, F. W., and BEHRMANS, V. G. (1953), "The Present Status of Plasma Expanders", *J.A.M.A.*, 152: 1116.

HAUROWITZ, F. (1950), "Chemistry and Biology of Proteins", 280.

HAYES, M. A., and COLLER, F. A. (1952), "The Neuroendocrine Control of Water and Electrolyte Excretions during Surgical Anæsthesia", *Surg., Gynec. & Obst.*, 95: 142.

HISSINK, L. A. G. (1948), *"Over de Waarde van het Eiwit Hydrolysaat Capaine ('Amparon') bij de Behandeling van den Traumatischen Shock"*, Medical Thesis.

HISSINK, L. A. G. (1950), "The Value of the Protein Hydrolysate Capain ('Amparon') in the Treatment of Traumatic Shock", M. J. AUSTRALIA, 1: 187.

HISSINK, L. A. G. (1951), "Microscopical Studies of the Peripheral Circulation in Rats", unpublished.

HISSINK, L. A. G. (1953*a*), "Eosinopenic and Other Hæmatological Effects in Adrenalectomized Rats and Mice after the Injection of a Casein Hydrolysate, 'Amparon'", M. J. AUSTRALIA, 2: 631.

HISSINK, L. A. G. (1953*b*), "Hæmatological Reactions in Hypophysectomized Rats after the Injection of 'Amparon', Cortisone and Adrenaline", M. J. AUSTRALIA, 2: 746.

HOITINK, A. W. J. H. (1935), "Treatment of Acute Fatal Hemorrhage by Injection of Artificial Blood Substitutes. A Comparative Study of Artificial Blood Substitutes", *Surg., Gynec. & Obstet.*, 61: 613.

HUBAY, C. A., KRIEGER, H., HOLDEN, W. D., and HANCOCK, T. (1951), "Effect of Protein Depletion on Rate of Disappearance of Radioactive Protein from the Blood Stream", *Proc. Soc. Exper. Biol. & Med.*, 78: 402

HYDE, G. M., BERLIN, N. J., PARSONS, R. J., and WHITTINGTON, B. (1953), "The Blood Volume Expansion Produced by Gelatin, Serum, Albumin and Plasma", *Blood*, 8: 671.

KABAT, E. A. (1953), "Dextran—An Antigen in Man", *J. Immunol.*, 70: 514.

LAKE, B. J., SIMMONDS, W. J., and STEINBECK, A. W. (1953*a*), "The Effect of Foreign Plasma on Capillary Permeability in Unsensitized Animals", *Australian J. Exper. Biol. & M. Sc.*, 31: 55.

LAKE, B. J., SIMMONDS, W. J., and STEINBECK, A. W. (1953*b*), "The Nature of the Capillary Damaging Factor in Foreign Plasma", *Australian J. Exper. Biol. & M. Sc.*, 31: 65.

LEE, R. E., and HOLZE, E. A. (1951), "Peripheral Vascular Hæmodynamics in the Bulbar Conjunctivæ of Subjects with Hypertensive Vascular Disease", *J. Clin. Investigation*, 30: 529.

LEUSEN, J. R., and ESSEX, H. E. (1953), "Leukopenia and Changes in Differential Leucocyte Counts, Produced in Rabbits by Dextran and Acacia", *Am. J. Physiol.*, 172: 231.

MACCARTHY, M. D., and DRAHEIM, J. W. (1952), "Survival of Thermally Injured Rats Infused with Saline, Polyvinylpyrrolidone, Dextran and Oxypolygelatin", *Proc. Soc. Exper. Biol. & Med.*, 79: 346.

MACKAY, E. M. (1950), "Experimental Pulmonary Edema. Pulmonary Edema Accompanying Trauma in Brain", *Proc. Soc. Exper. Biol. & Med.*, 74: 695.

MACNEIL, C., and FRENTELMAN, E. F. (1951), "Detection of Antibodies by Polyvinylpyrrolidon. Comparison of Sensitivity of Anti-Human Globulin and PVP", *Proc. Soc. Exper. Biol. & Med.*, 78: 674.

MOORE, B. P. L. (1953), "Complications of Blood Transfusions", *Canad. M. A. J.*, 68: 332.

MOTT, J. C. (1951), "Some Factors Affecting the Blood Circulation in the Common Eel (Anguila-Anguilla)", *J. Physiol.*, 114: 387.

MUDGE, G. H. (1951), "Studies on Potassium Accumulation by Rabbit Kidney Slices. Effect of Metabolic Activity", *Am. J. Physiol.*, 165: 113.
MURPHY, W. P., and WORKMAN, W. C. (1953), "Serum Hepatitis from Pooled Irradiated Dried Plasma", *J.A.M.A.*, 152: 1421.
PARKINS, W. M., PERLMUTT, J. H., and VARS, H. M. (1952), "Evaluation of Crystalloidal Solutions in Hemorrhaged Dogs", *Am. J. Physiol.*, 170: 351.
PATERSON, R. R., and BOHR, D. F. (1952), "Response of Terminal Vascular Bed to Pressor Substances and the Action of VEM on these Responses", *Am. J. Physiol.*, 171: 757.
RAISZ, L. G. (1952), "Dextran and Oxypolygelatin as Plasma Volume Expanders. Renal Excretion and Effects on Renal Function", *J. Lab. & Clin. Med.*, 40: 880.
SARNOFF, S. J., and BERGLUND, E. (1952), "Neurohaemodynamics of Pulmonary Edema", *Am. J. Physiol.*, 170: 588.
SCHILLING, J. A., MACCOORD, A. B., CLAUSEN, S. W., WHELAN, T. J., and KUYKENDALL, S. J. (1953), "Electrolyte Changes in Healing Muscle Wounds in the Dog", *Surg., Gynec. & Obst.*, 97: 162.
SCHWARTZ, T. B. (1953), "Proteolytic Activity and Protein Catabolism of Rat Diaphragm in Hemorrhagic Shock", *Proc. Soc. Exper. Biol. & Med.*, 83: 362.
SELYE, H. (1950), "The Physiology and Pathology of Exposure to Stress", *Acta*, Inc.
STERLING, K. (1951), "The Turnover Rate of Serum Albumin in Man as Measured by I^{131} Tagged Albumin", *J. Clin. Investigation*, 30: 1228.
STRATTON, F. (1952), "The Human Blood Groups", *Nature*, 170: 821.
STUDDIFORD, W. E. (1937), "Severe and Fatal Reactions following Intravenous Use of Gum Acacia Glucose Infusions", *Surg., Gynec. & Obst.*, 64: 772.
WASSERMAN, K., and MAYERSON, H. S. (1951), "Exchange of Albumin between Plasma and Lymph", *Am. J. Physiol.*, 165: 15.
YUILE, C. L., LAMSON, B. G., MILLER, L. L., and WHIPPLE, G. H. (1951), "Conversion of Plasma Proteins to Tissue Proteins without Evidence of Protein Breakdown", *J. Exper. Med.*, 93: 539.
ZWEIFACH, B. W. (1948), "Peripheral Circulation", *Ann. Rev. Physiol.*, 10: 225.
ZWEIFACH, B. W., ABELL, R. G., CHAMBERS, R., and CLOWES, G. H. A. (1945), "Role of the Decompensatory Reactions of Peripheral Blood Vessels in Tourniquet Shock", *Surg., Gynec. & Obst.*, 80: 593.
ZWEIFACH, B. W., and HERSHEY, S. G. (1949), "Predisposing Action of Anaesthetic Agents on the Vascular Responses in Hemorrhagic Shock", *Surg., Gynec. & Obst.*, 89: 469.
ZWEIFACH, B. W., LEE, R. E., HYMAN, C., and CHAMBERS, R. (1944), "Omental Circulation in Morphinized Dogs Subjected to Graded Hemorrhage", *Ann. Surgery*, 120: 232.

THE MORTALITY IN AUSTRALIA FROM CANCER OF THE PANCREAS.

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CANCER of the pancreas is considered here as part of an analysis of cancer mortality in Australia. Its association with diabetes is also considered.

Cancer of the Pancreas as a Cause of Mortality in Australia.

At current rates of mortality the pancreas is the tenth most common site in males and the eighth most common site in females for fatal cancers. The death rates from cancer of the pancreas are given in Table I and Figure I.

The rates are higher for males than for females at practically every age in each period. There has been a steady rise in the rates over the years of the survey, which corresponds with the experience in England and Wales.

The Association of Diabetes and Cancer of the Pancreas.

It might be expected that any chronic disease such as cancer affecting the pancreas would lead to dysfunction and sometimes to diabetes. This expectation appears to be borne out by figures from the review of cancer in London of Harnett (1952); 4% of 245 patients with cancer of the pancreas had coexisting diabetes. This rate is much higher than in cancer of other sites; 1·2% of 395 patients with recto-sigmoid cancer had coexisting diabetes, 0·6% of 928 patients with cancer of the rectal ampulla, 0·6% of 1430 patients with cancer of the stomach, none of 473 patients with cancer of the œsophagus, 1·1% of 2129 patients with cancer of the breast, and 0·8% of 383 patients with cancer of the prostate. Harnett's (1952) report is, therefore, good evidence that patients with cancer of the pancreas are more prone to develop diabetes than are other cancer patients.

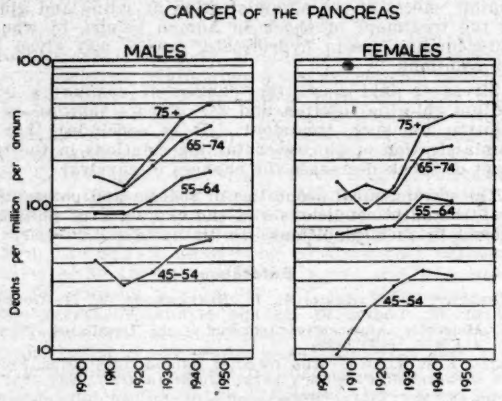

FIGURE I.

Pathological studies have added weight to this conclusion. Thus Haunz and Baggenstoss (1950), studying cancer of the head of the pancreas, found that three out of 25 patients had developed diabetes before death, and noted disturbance of the blood sugar level in four others, although a definite diagnosis of diabetes had not been made. In all three cases of diabetes, examination of the pancreas showed severe grades of interlobar and intralobular fibrosis, while in the other four the pancreatic changes were slighter. They reached the following conclusion: "It is possible that in cases of carcinoma of the head of the pancreas with obstruction of the pancreatic ducts diabetes develops more frequently than is commonly supposed." Similar findings

TABLE I.
Trends of the Mortality in Australia from Cancer of the Pancreas.

Period.	Sex.	Deaths per Million per Annum at Ages (Years).							
		0 to 24.	25 to 34.	35 to 44.	45 to 54.	55 to 64.	65 to 74.	75 and Over.	All Ages.
1908 to 1910	M.	0	4	15	41	87	107	155	17
1911 to 1920	M.	0	1	7	28	87	125	133	15
1921 to 1930	M.	0	2	9	34	106	185	224	23
1931 to 1940	M.	0	2	15	51	151	282	390	40
1941 to 1945	M.	0	3	11	57	166	344	487	51
1908 to 1910	F.	0	1	1	9	61	118	139	10
1911 to 1920	F.	0	2	4	18	67	109	90	11
1921 to 1930	F.	0	1	7	27	70	134	129	16
1931 to 1940	F.	0	2	8	34	112	230	315	32
1941 to 1945	F.	0	1	8	32	108	246	397	38

TABLE II.

The Incidence of Cancers in Patients of the Royal Prince Alfred Hospital, Sydney.

Sex.	Years of Experience.	Cases of Cancer of the Pancreas.		Cases of Cancers of all Other Sites.		Cancers of All Sites.	
		Observed.	Expected.[1]	Observed.	Expected.[2]	Observed.	Expected.[2]
M.	1931 to 1947	4	0·45	10	13·17	14	13·62
F.	1931 to 1947	8	0·90	39	26·06	47	26·96
Total	.. .. ..	12	1·35	49	39·23	61	40·58

[1] The expected numbers have been calculated by the use of the Australian figures for 1931–1940, as given in Table I.

[2] The expected numbers have been calculated from Lancaster (1950, Table III).

have been recorded by Grauer (1939), who found diabetes in eight of 34 patients who had died from cancer of the pancreas. He concluded that the severity of the diabetes tended to run parallel with the damage to the pancreatic cells by infiltration, blockage of pancreatic ducts and so on.

Although the findings of Harnett (1952), of Kaunz and Baggenstoss (1950) and of Grauer (1939) are so striking, many clinicians are reluctant to admit that cancer of the pancreas can cause diabetes. Thus Marble (1952), in his chapter in Joslin's text-book, is inclined to regard the high incidence of cancer of the pancreas in his series as fortuitous. Yet in his series cancer of the pancreas was the second most common cancer in both males and females, being second to cancer of the stomach in males and to cancer of the breast in females—a very suggestive finding. Moreover, Marble (1934) has given quite striking data in his Table IV, where in many cases the onset of the cancer and that of the diabetes are shown to have been close.

Instead of concentrating on whether patients with cancer of the pancreas develop diabetes, we may equally well inquire whether diabetics develop cancer of the pancreas. The number of cases of cancer to be expected during one year in a given number of persons aged, say, sixty to sixty-four years may be computed. This may be done at all ages in a clinic experience. I am indebted to Dr. Kempson Maddox, of the Royal Prince Alfred Hospital, Sydney, for permission to use data I have obtained from the diabetic clinic during a follow-up survey. I have computed the expected numbers of cancer of the pancreas by provisionally assuming that there is no association between cancer and diabetes, and that the expected number is the sum of the products, mortality rate by years experienced, taken for every age group. The mortality rates have been taken as those of Australia for 1931 to 1940, given in Table I. The clinic experience is given in Table II.

There are many more patients with cancer of the pancreas than were expected—four males instead of an expected number of less than one, and eight females instead of one. For males, there were less deaths from cancer of other sites than was to be expected, whereas for females there were rather more. Marble (1952) gives as a reason for discounting the importance of the high proportion of cancer of the pancreas in his series the experimentally observed fact that in animals about nine-tenths of the pancreas needs to be ablated before diabetes is caused. This surely cannot be carried over to elderly patients, in whom even a small loss of pancreatic functional tissue may be sufficient to destroy the balance between the body's needs and production of insulin. It seems reasonable to believe that the cancers in such patients may have been slowly developing, so that they presented first with their diabetes.

Summary.

The pancreas is a moderately common site for cancer. The mortality rates in Australia for cancer of the pancreas have been rising over the years 1908 to 1945. There is often an association between cancer of the pancreas and diabetes.

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This paper is published with the permission of the Director-General of Health, Canberra. Miss M. Concepción has drawn the diagram.

References.

GRAUER, F. W. (1939), "Pancreatic Carcinoma. A Review of Thirty-four Autopsies", *Arch. Int. Med.*, 63: 884.

HARNETT, W. L. (1952), "Survey of Cancer in London", British Empire Cancer Campaign, London.

HAUNZ, E. A., and BAGGENSTOSS, A. H. (1950), "Carcinoma of the Head of the Pancreas. The Effects of Obstruction on the Ductal and Acinar Systems", *Arch. Path.*, 49: 367.

LANCASTER, H. O. (1950), "Cancer Mortality in Australia", M. J. AUSTRALIA, 2: 503.

MARBLE, A. (1934), "Diabetes and Cancer", *New England J. Med.*, 211: 339.

MARBLE, A. (1952), in "The Treatment of Diabetes Mellitus", by E. P. Joslin, H. F. Root, P. White and A. Marble, Ninth Edition, Henry Kimpton, London.

Reports of Cases.

FILARIAL GRANULOMA OF SPERMATIC CORD.

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FILARIASIS was known to the ancient Hindu writers (600 B.C.) mainly in the form of elephantiasis of the leg and scrotum. However, the first adult female worms were secured from lesions of the arm by Bancroft in Australia in 1876–1877, whence the name of the parasite, *Filaria bancrofti* (*Wuchereria bancrofti*).

Wuchereria bancrofti has the most extensive geographical distribution of all Filaridæ and occurs in practically all warm countries, being found as far south as Brisbane, and as far north as southern Japan. The adult parasites may be present in the lymphatic vessels of any part of the body, especially the genitalia. This causes lymphatic obstruction, and in the majority of cases infection with streptococci ensues, culminating in elephantiasis.

Manson-Bahr (1945) states that chronic swellings about groins and testes in patients from the tropics should be regarded as possibly filarial in nature. In addition to lymphadenitis, filarial orchitis, hydrocele and funiculitis are quite common.

Sorour has recognized in Egypt a chronic eosinophilic funiculitis, characterized by fibrosis, heavy eosinophilic infiltration and thickened blood vessels, which are often thrombosed.

It is a case somewhat similar to this latter type of granuloma that is to be reported.

Clinical Record.

The patient was Gunner X., aged thirty years. In February, 1951, in Korea, the patient noticed an ache in the

right testicle, especially on lying down at night and when the testis was squeezed. Early in March he noticed a soft, very tender lump in the right inguinal region, which led him to parade sick. No inflammation was seen, and the medical officer ordered a truss. The lump increased in size until he was evacuated from Korea to the BCOF/29 General Hospital, Japan, on March 9. He mentioned that he had also been troubled with a painful lump near his anus, which discharged at times.

Inquiry into his previous army record revealed that he had been evacuated from Dunkirk, and had been taken prisoner of war in Singapore and sent to work on the Burma-Thailand railway. In 1944 he was sent to Japan on a prison ship which was torpedoed off Korea. He was rescued, and spent the rest of his captivity in southern Japan working in glass furnaces at Fukuoka. He had had the following previous illnesses: malaria in 1941, and in 1942 yellow jaundice, malaria, tropical ulcers and dysentery. He denied any history of venereal disease. He was discharged as fit without a pension in 1946 in England, where he worked until recalled to the army in August, 1950. He reached Korea in September, 1950, and served in Pyongyang, Suwon and Seoul.

Examination of the patient revealed him to be apyrexial and in good general health. There was a firm, smooth swelling about one inch in diameter, rounded and slightly tender, in the right side of the scrotum. It was situated about half an inch above the testis in the line of the spermatic cord, and moved in the direction of the latter when the testicle was pulled upon. The testis and epididymis on both sides were normal to clinical examination. Rectal examination gave negative results, except to disclose a small *fistula in ano*. No glands were palpable in the groin.

A number of investigations were carried out. A blood examination gave the following information. The hæmoglobin value was 14·5 grammes *per centum*; the leucocytes numbered 10,000 per cubic millimetre, 54% being polymorphonuclear cells, 36% lymphocytes, 4% monocytes and 6% eosinophile cells. An absolute eosinophilia was stated to be present. The blood failed to react to the Kahn test, no abnormality was detected in the urine, and prostatic massage and examination of a smear revealed no abnormality.

A provisional diagnosis of cyst of the spermatic cord was made.

At operation, under general anæsthesia, a right inguinoscrotal incision was made. A firm, homogeneous lump in close relation to the *vas deferens* was excised by sharp dissection. Hæmostasis was obtained and the wound was closed in layers.

A pathological examination of the tissue removed was carried out by Captain G. Missen, with the following findings. The specimen was received fixed in formol saline. It consisted of a firm, pinkish-white mass, measuring 14 by 12 by seven millimetres, the shape of a quarter of a sphere. On its convex aspect it appeared smooth and encapsulated. Bisection revealed dense, homogeneous, pinkish-white tissue, resembling that of a fibroma.

Microscopic examination showed that four-fifths of the circumference of the section was smooth, but lobulated in parts where fairly deep clefts entered the mass. The appearance suggested that the mass was previously applied to a separate barrier of tissue. Along the remaining part of the circumference the mass had been cut. The mass itself consisted of fibrous tissue, in many areas densely infiltrated with eosinophile leucocytes. In other parts plasma cells predominated. In the centre was a small abscess cavity, lined by granulation tissue and containing many necrotic neutrophile leucocytes and also one or more apparently viable, gravid, adult female filariæ. Elsewhere within the mass were small cavities containing small round cells, apparently lymphocytes, but no other parasites. There was generalized endothelial hyperplasia of almost all arterioles and venules in the mass. A small bifurcating vein was seen to be filled with organized thrombus. Recanalization of both channels was taking place.

It was considered that the condition was a filarial granuloma of the spermatic cord.

In view of the report, the peripheral blood was examined for microfilariæ, but without success. Examination of the urine revealed no evidence of chyluria, and the stools were normal.

The patient developed a small hæmatoma at the site of the operation, but this subsided rapidly.

Discussion.

It should be noted that clinical symptoms usually appear about nine months after exposure to infection, and that "Hetrazan" is the only drug to show promise in the treatment of filariasis. This report may aid in the diagnosis of an unusual lump in the spermatic cord occurring in any of our servicemen returning from Japan or Korea.

Acknowledgements.

I wish to thank Captain G. Missen, R.A.M.C., pathologist to the BCOF/29 General Hospital, for the pathological report, and Major-General F. Kingsley Norris, Director-General of Medical Services, Australian Military Forces, for permission to publish this report.

References.

Manson-Bahr, P. H. (1945), "Manson's Tropical Diseases", Twelfth Edition, Cassell.

Strong, R. P. (1943), *Editor*, "Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases", Sixth Edition, Blakiston, Philadelphia.

ORAL DESENSITIZATION TO PENICILLIN.

By E. W. Chenoweth,
Melbourne.

A recent survey by the Ministry of Health in Britain, reported in the *British Medical Journal* (1953), indicates that about 3·5% of all medical and ancillary personnel using antibiotics become sensitized to one or more of them. Probably the figures would be much the same in Australia, and this problem is frequently being encountered amongst the medical and nursing staffs in our hospitals. The report states that the position with regard to desensitization is confused, some dermatologists stating that it is useless, whilst others state that they have desensitized nurses so successfully that they have been able to resume handling the sensitizing antibiotic.

The following notes of successful treatment of penicillin sensitivity by the oral route, especially in view of its simplicity, should be of interest.

Clinical Record.

X., a nursing sister, aged twenty-five years, a hay-fever subject, was first examined in January, 1951, when she complained of repeated attacks of angioneurotic œdema over the previous three and a half years. The onset had followed an injection of penicillin, which she had handled before. From then on any contact with the antibiotic was followed within four to six hours by angiœdema. She had decided that if she could not be cured of her sensitivity she would have to abandon her chosen career.

In accordance with a method described by O'Donovan and Klorfajn (1946), an attempt at desensitization by the oral route was made, starting with a dose of 5000 units every four hours during the day. This had to be abandoned because of the development of acute urticaria and swelling of the lips following the third dose. When this had subsided, after a couple of days, a second attempt was made with an initial dose of 300 units, the dose being increased by 300 units every four hours during the day. In fifteen days she was taking 7500 units every four hours with impunity and had used penicillin powder without untoward effect. She felt better than she had done for months. On reaching 15,000 units every four hours, the

doses were reduced to three times a day, and she had returned to full duty and the giving of all penicillin treatment.

In a month the dose was reduced to 15,000 units in one daily dose, and after a week to once every second day and then every third day, fourth day and so on, till, eight months after commencement of treatment, she was taking 15,000 units every twenty-one days and was handling penicillin almost every day without harmful effect. In twelve months she had discontinued treatment and was still quite well. She moved to another State, and I have not heard of her since.

Comment.

Similar cases could be quoted. An important point is that when sensitivity reappears, due to a dose above the level of tolerance, immunity may still be achieved by going back to a smaller dose and then proceeding more cautiously.

References.

O'DONOVAN, W. J., and KLORFAJN, I. (1946), "Sensitivity to Penicillin; Anaphylaxis and Desensitisation", *Lancet*, 2: 444.

"Sensitization of Nursing Staffs to Antibiotics. A Report from the Ministry of Health" (1953), *Brit. M. J.*, 2: 39.

CHRONIC SUPPURATIVE HIDRADENITIS.

By E. S. R. HUGHES and R. H. KERNUTT,

Melbourne.

THE cases reported here demonstrate the typical features of chronic suppurative hidradenitis and the value of radical surgical excision.

Chronic suppurative hidradenitis is the term given to infection of the cutaneous apocrine glands. These are larger than the usual sweat glands, and unlike them are concentrated in certain regions, particularly the axilla, groin, scrotum, perineum and anus. Apocrine glands lie deeply in the subcutaneous tissue, are found only in association with hair follicles, and can actually be seen with the naked eye. The clump of glands in the region of the anal orifice has been termed the "anal organ" (Woollard, 1930).

It is not known how infection starts, but once it is established other glands in the neighbourhood become involved, with the formation of multiple nodules, the centres of which break down to result in discharging sinuses with thick fibrous walls which coalesce with one another. Ultimately the normal soft elastic skin and subcutaneous tissues are replaced by indurated, chronically inflamed tissue, over which are scattered numerous sinuses discharging thin purulent material. Individual sinuses may or may not communicate with one another or with the anal canal and rectum.

The diagnosis can be made clinically when there is a relatively superficial chronic inflammatory lesion with considerable fibrous tissue reaction studded with multiple sinuses in one or more areas in which apocrine glands are found.

Non-surgical measures, such as vaccine therapy and chemotherapy, ultra-violet light *et cetera*, are ineffective. For small isolated lesions incision and drainage are satisfactory.

For advanced lesions nothing short of radical excision will cure the patient of the disease (Christensen, 1950; Conway *et alii*, 1952). The lesion extends to the deeper layers of the subcutaneous tissue, and the incision must be down to this level. The resulting wound may be very large, and if it is allowed to heal by secondary intention will take weeks or even months to close.

In the first case reported here the chronic suppurative process was situated on both sides of the anus and extended forwards to the sides of the scrotum, particularly on the left side, where it reached the groin. In the second case

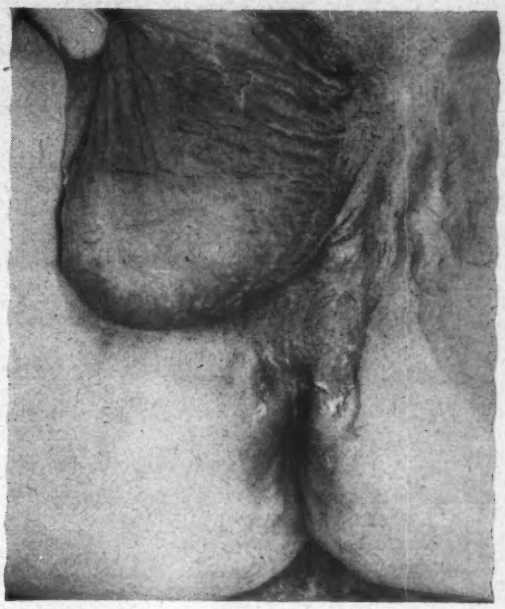

FIGURE I.

Case I. Pre-operative view to show the anterior extension of the chronic suppurative hidradenitis to the left of the scrotum and towards the groin. There are a number of discharging sinuses leading into tracks which might remain discrete or which might intercommunicate. The intervening tissue is densely indurated.

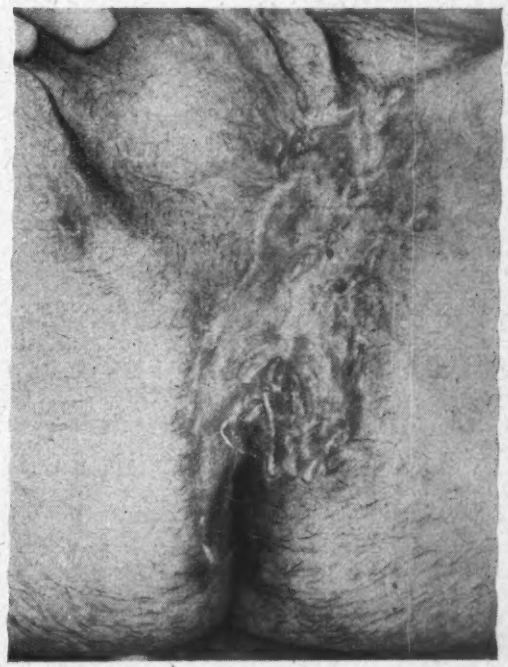

FIGURE II.

Case I. Post-operative view (twelfth day), to show the consolidating grafted area. In places where the sheets of skin were not in good apposition there has been a delay in healing. On the inner aspects of both thighs are two isolated areas treated by simple unroofing. The posterior perianal area is largely hidden from view.

the lesion was confined to the right side of the anus, although it also extended well forwards into the perineum. In both cases the affected area was excised and a primary split-skin Thiersch graft was applied with successful results.

Clinical Records.

Case I.—Mr. H., aged forty-three years, was referred to one of us by Dr. W. P. Caldwell, of Warragul, Victoria. Some fifteen months previously an abscess near the anus had been incised, but it continued to discharge. Subsequently other abscesses had appeared and had discharged spontaneously. He was in constant discomfort, was unable to walk any distance, and had been forced to abandon his work. More recently a painful swelling had appeared in the right axilla.

Figure III.

Case II. Pre-operative view to show the lesion on the right side of the anus; the extent of the area to be excised is marked by dotted lines. The skin is discoloured and there are several discharging sinuses.

He was of dark complexion and lean physique. Surrounding the anus, and extending outwards and forwards to the left of the scrotum, were a number of sinuses discharging a thin purulent material. Some of the sinus tracks appeared to become confluent, but no communication with the rectum was detected. The whole area was deeply indurated and tender, but the inflammatory process did not appear to have any extension through the deep fascia (Figure I).

In the right axilla was a similar lesion, but only two centimetres in diameter with a single centrally situated sinus.

At operation the indurated area around the anus and in the perineum was excised. A split-skin Thiersch graft was taken from the left thigh and was placed over the resulting extensive wound, and dressings were applied. One or two isolated sinuses some distance from the main mass were not included in the excised tissue, and were simply unroofed and curretted.

The patient was nursed in a lithotomy position for five days, and the graft was inspected on the sixth post-operative day. There was almost a complete "take" of the graft. The only areas not covered were those where the sheets of skin had not been accurately apposed (Figure II). The graft slowly consolidated, and on his discharge from hospital two and a half weeks after operation the wound was healed.

There had been no recurrence when he was examined six months later; the lesion in the axilla was not troubling him, and treatment for this area was postponed.

Case II.—Mr. A.C., aged twenty-two years, attended the out-patient department of the Royal Melbourne Hospital complaining of a swelling on the right side of the anus, which had slowly increased in size since it had first appeared eighteen months previously. He was not unduly worried about its presence except in the hot weather, when it discharged freely and was responsible for discomfort on walking and sitting.

He was of dark complexion and of small physique. On the right side of the anus and extending forwards was an

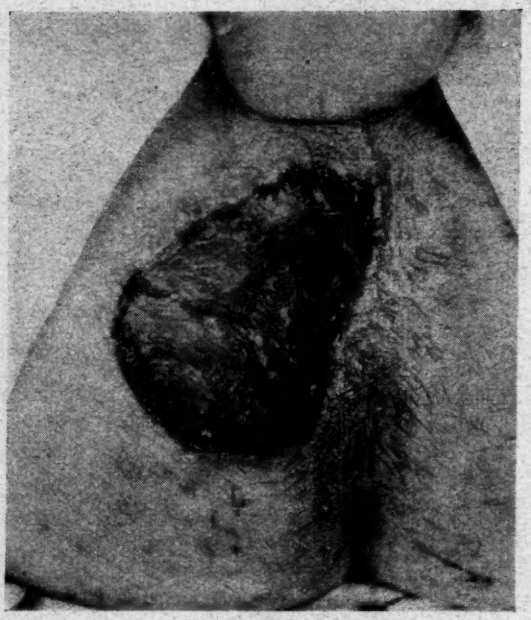

Figure IV.

Case II. Post-operative view (seventh day) to show the grafted area immediately after the dressings have been removed. The only part in which the graft failed was the posterior aspect, where there was a small hæmatoma.

irregular and indurated tender area about 10 centimetres wide and 12 centimetres long. There were three sinuses on the surface discharging a small amount of thin pus; there appeared to be no connexion between the individual sinuses or between them and the anal canal. The induration involved the dermis and underlying subcutaneous tissue, but did not extend deeply (Figure III). There were no similar lesions in other parts of the body.

At operation the area was excised, a roughly oval defect being left with a floor formed by healthy deeper subcutaneous tissue. A split-skin Thiersch graft was taken from the left thigh and placed over the wound.

The patient was nursed in the lithotomy position for seven days, when the dressings were removed. Except for a small hæmatoma at the posterior end of the wound the graft was satisfactory. He was discharged from hospital and returned to work two and a half weeks after operation with the wound completely healed.

Summary.

1. Chronic suppurative hidradenitis is an infection involving the apocrine glands. These are found in association with the hair follicles in certain parts of the body

such as the perineum, around the anus, in the axilla *et cetera*. The infection may involve a wide area of skin and subcutaneous tissue, which becomes very indurated and studded with multiple sinuses discharging a thin purulent material. The only satisfactory treatment is radical excision.

2. Two cases are reported of chronic suppurative hidradenitis involving large areas around the anus and in the perineum, which was treated by radical excision and primary skin grafting with successful results.

References.

CONWAY, H., STARK, R. B., CLIMO, S., WEETER, J. C., and CARCIA, F. A. (1952), "The Surgical Treatment of Chronic Suppurative Hidradenitis", *Surg. Gynec. & Obstet.*, 95: 455.

CHRISTENSEN, J. B. (1950), "Hidradenitis Suppurativa Involving the Para-anal Region", *Am. J. Surg.*, 79: 61.

WOOLLARD, H. H. (1930), "The Cutaneous Glands of Man", *J. Anat.*, 64: 415.

Reviews.

The Year Book of General Surgery (1953-1954 Year Book Series). Edited by Evarts A. Graham, A.B., M.D., with a Section on Anesthesia edited by Stuart C. Cullen, M.D.; 1953. Chicago: The Year Book Publishers, Incorporated. 7¾" × 5¼", pp. 590, with many illustrations. Price: $6.00.

THE breadth of appeal of this Year Book will be increased by the fact that the editor, Evarts A. Graham, makes it quite clear that he regards surgery as a science as well as an art, and he is more than willing to include amongst the articles abstracted a generous proportion of those in which chemistry is applied to surgical problems. Editorial comment throughout the Year Book is brief and infrequent, but a great deal of material has been packed into the 565 pages of abstracts. There are separate sections on surgery and on anæsthesia. Chapters are devoted to general surgical topics, armamentarium, shock, water and electrolytes, nutrition, chemotherapy, wounds, wound infections and burns, neoplasms, the face, buccal cavity and pharynx, the thyroid and parathyroid, the breast, the mediastinum and bony thorax, the lungs and thoracic cavity, the heart and arteries, the veins, the œsophagus, the abdomen, hernia, the liver and spleen, the stomach and duodenum, the biliary system, the pancreas, the small intestine, appendicitis, the colon and rectum, the genito-urinary system, the adrenal glands, the lymphatic system and the extremities. The chapter on the lungs and thoracic cavity is divided into sections on general topics, hæmothorax, tuberculosis, cysts and tumours, and miscellaneous conditions. This chapter and that on the heart and arteries are much the longest in the section on surgery. According to the practice of the last few years, anæsthesia is given a separate section, edited by Stuart C. Cullen. This has chapters on narcotics, ventilation, inhalation anæsthesia, muscle relaxants, spinal analgesia, infiltration and regional analgesia, circulation, fluid and electrolyte balance, and miscellaneous subjects. The volume is freely illustrated and well presented and should be of wide interest.

The Year Book of Medicine (1953-1954 Year Book Series). Edited by Paul B. Beeson, M.D., Carl Muschenheim, M.D., William B. Castle, M.D., Tinsley R. Harrison, M.D., George B. Eusterman, M.D., and Robert H. Williams, M.D.; 1953. Chicago: The Year Book Publishers, Incorporated. 8" × 5¼", pp. 736, with 127 illustrations. Price: $6.00.

THE latest group of the Practical Medicine Series of Year Books has an alteration in title which requires a brief explanation. The publishers state that the designation (Series 1953-1954) used on the cover and title page of the volume is to indicate its publication during the "Series Year", which begins in September, 1953, with the publication of "The Year Book of Medicine", and ends in May, 1954, with "The Year Book of Pathology and Clinical Pathology". The 1953-1954 series volume is, therefore, the immediate sequel to the 1952 volume and covers twelve months' literature without interruption or intermission. The articles abstracted in "The Year Book of Medicine" are taken from journals received between May, 1952, and May, 1953. The editorship is the same, except that Carl Muschenheim has replaced J. Burns Amberson in the section on the chest. The first part of the book deals with infections. A short group of articles under the heading "General Considerations" is followed by a subsection on chemotherapy. Most of the references here are to the difficulties and complications that have arisen with prolonged and extensive use of the various antibiotics. Only six articles are abstracted in the subsection on ACTH and cortisone therapy, an indication that this form of treatment as understood at present has been fairly fully explored. The remaining subsections are devoted to various individual infections, concluding with collagen diseases and diseases of uncertain ætiology; a newcomer is cat-scratch disease. The section on the chest opens with an abstract of an article on Leonardo da Vinci and the bronchial circulation. Subsections are devoted to normal and pathological anatomy, pulmonary function, physical diagnosis and diagnostic procedures, bronchiectasis, neoplasms, bronchial asthma, pneumonokonioses and other inhalation diseases, pulmonary mycoses, tuberculosis and miscellaneous conditions. The section on the blood and blood-forming organs contains material grouped much as in the previous edition, excepting that there is an extra subsection on hypersplenism. The section on the heart and blood vessels and the kidney contains subsections on congenital and rheumatic heart disease, coronary arteriosclerosis, hypertension, cardiac surgery, pathological physiology, congestive heart failure, electrocardiography and arrhythmias, rare types of heart disease, pulmonary circulation, cerebral circulation, peripheral vascular disease and the kidney. The abstracts in the section on the digestive system are grouped simply on an anatomical basis. The last section, that dealing with metabolism, has subsections on the thyroid gland, the adrenal gland, the pituitary gland, *diabetes mellitus* and related phenomena, lipid metabolism, bones, joints and calcium metabolism, and miscellaneous subjects. A great deal of information has been packed into this year book, which, as one of the "basic" members of the series, has something to offer practitioners in most branches of medicine.

The Year Book of Obstetrics and Gynecology (1953-1954 Year Book Series). Edited by J. P. Greenhill, B.S., M.D., F.A.C.S.; 1953. Chicago: The Year Book Publishers, Incorporated. 8" × 5¼", pp. 568, with 104 illustrations. Price: $6.00.

AS in previous years, an acceptable feature of this particular Year Book is the free commentary supplied by the editor. He brings to this not only his own wide experience, but a variety of references to articles other than those abstracted at length in the Year Book. Obstetrics and gynæcology occupy separate sections in the book. The section on obstetrics is subdivided into subsections on pregnancy, labour, puerperium and the newborn. Under the heading "Pregnancy" are considered physiology, abortion, ectopic pregnancy, complications and toxæmia. Under the heading "Labour" are considered a number of articles of a general nature, and others on analgesia and anæsthesia, complications, operative obstetrics and uterine hæmorrhage. The section on gynæcology has subsections on general principles, diagnosis, infertility, operative technique, infections, benign tumours and endometriosis, malignant tumours, menstrual disorders and endocrinology. A wide range of journals both general and special has been covered in culling the articles abstracted in this book. The subject matter is such that it will be of interest not only to obstetricians and gynæcologists, but to general practitioners, physicians, general surgeons and others. The articles abstracted are taken from journals received by the editor between July, 1952, and July, 1953. The volume is excellently produced and contains over a hundred illustrations.

First Aid Made Easy: For the Parent; The Housewife; The Man in the Street and for Everywhere. By William H. London; 1953. Sydney: Dymock's Book Arcade. 7" × 4¾", pp. 80. Price: 3s.

THIS is a straightforward little book which should be acceptable to and easily understood by the non-medical person. It explains the standard first-aid procedures that any ordinary person should be able to apply in an emergency. There are only a few statements to which exception might be taken. When nose-bleeding continues despite simple measures, the instruction given here is to "plug the bleeding nostril with long strips of gauze, bandage or material, and if necessary, call a doctor". Not many people without knowledge of the anatomy of the nose could plug a nostril effectively, or even safely, although if the patient was completely isolated from medical aid, the attempt might be worth while. If a nose needs to be plugged to stop bleeding, it is probably fair to say that the calling of a doctor is

always "necessary". Boracic and water could with advantage be removed from the list of antiseptics, as it has little, if any, value. More stress might be laid on the need to seek medical attention for burns of the eye, particularly those due to chemicals, even when the amount of damage is apparently small. For the treatment of burns of any magnitude, it is generally agreed that the application of any of the ointment preparations mentioned here is best avoided; most doctors would prefer that a simple dressing be applied and that they be called immediately. The advice under the heading "Gastritis" is confusing; no indication is given of what the term is intended to imply, and one wonders why the author so firmly prohibits milk or milk foods (this is one of the most emphatic pieces of advice in the whole book). In a brief paragraph headed "Indications of Appendicitis" the author states that if there are tenderness and pain in the lower part of the right side of the abdomen, this may indicate inflammation of the appendix. In such a case, he rightly recommends that a doctor be called immediately. However, he goes on to state: "If there is no tenderness to touch and no indications that the patient may have appendicitis, then a dose of castor oil may be given. . . ." The absence of tenderness to touch does not rule out acute appendicitis, and the ordinary layman is in no position to determine that there are "no indications that the patient may have appendicitis". The advice given is dangerous, and should be eliminated from the book. Otherwise, the book can be commended.

The Faber Medical Dictionary. Edited by Sir Cecil Wakeley, Bt., K.B.E., C.B., LL.D., M.Ch., D.Sc., F.R.S.E., F.R.A.C.S., F.A.C.S., F.R.S.A., F.Z.S.; 1953. London: Faber and Faber, Limited. 11" x 7½", pp. 478. Price: 45s.

There are plenty of medical dictionaries available, but up till now, the absence of a medical dictionary with English spelling has been a serious lack. Therefore, despite the excellence of a number of publications from the United States, "The Faber Medical Dictionary" will receive a wide welcome. It is attractively presented, and obviously a great deal of hard work has gone into its preparation. The compilation of such a work must be an exacting task, and perhaps one should not be too critical of a first edition. Nevertheless, it is not difficult to find faults, and for the sake of future editions they should be pointed out. The general policy in relation to drug entries is not particularly satisfactory. A limited number of proprietary drugs are referred to, but the entries in this field are far from complete; no indication is given of how the selection was made. The general practice appears to be to spell proprietary names with capital letters, but in some cases this is not done (for example, with "Chloromycetin" and "Pentothal Sodium"), and in some instances non-proprietary drugs are spelt with a capital letter (for example, aureomycin and chlorodyne). In the field of bacteriology and clinical pathology, many important omissions have been made. For example, no reference could be found to the erythrocyte sedimentation rate, to any of the common liver function tests, to the Casoni test or to the inulin clearance test for renal function. On the other hand, a good deal of space is taken up, unnecessarily it would seem, by anatomical details more appropriate to a text-book of anatomy; an example of this is the description of the course and general relations of individual nerves. It is difficult to see why certain words have been included—for example, inadequacy (defined simply as "insufficiency"), ignition ("the art of making fire") and cushion (defined as if it was a standard anatomical term). The compiler of a medical dictionary cannot be blamed for poor words that have come into common usage, for example, "short-circuiting", but the definition given of this word would be unlikely to help anybody who did not already know what it meant. The definition of "bloodless" as "anæmic", while literally correct, is in fact unsatisfactory. The term "Q" fever does not appear, but "Queensland fever" is defined as "an acute febrile disease caused by *Rickettsia burneti*". It should be pointed out that E. H. Derrick, who first described and named this condition, has stated that the "Q" stands for "query" and not for "Queensland" (see The Medical Journal of Australia, November 19, 1949), and in any case the simple form "Q" fever seems to have obtained general acceptance. A few misprints may be noted. "Adrenaline" is spelt correctly in its normal place in the dictionary, but when referred to under the heading of "epinephrine", it is spelt without an "e". In the definition of cyanosis "or" in one place should obviously be "of". In the definition of "Atebrin" "x" appears instead of "a". Mepacrine, the British Pharmacopœial term, is described as "originally introduced as Atebrin", but "Atebrin" is not described as mepacrine, and quinacrine hydrochloride, which is a synonym and the standard term in the United States, is described simply as "an antimalarial substance". These criticisms, which are by no means exhaustive, are not intended to be destructive. A dictionary of this kind is needed, and it is hoped that further suitably revised editions will appear. It has to be accepted that a dictionary receives no marks for being correct, and that every error, no matter how small, is important. A dictionary is either accurate (so far as accuracy is possible) or misleading, but it remains an authority. It would not need a great addition to the already prodigious work that has obviously gone into this dictionary to make it a completely trustworthy guide.

Mental Health and Hindu Psychology. By Swami Akhilananda; 1952. London: George Allen and Unwin, Limited. 9" x 6", pp. 250. Price: 16s.

It is apparent from this book that Swami Akhilananda is learned both in the ancient religious culture of India and in modern Western psychiatry and psychology. Professor O. Hobart Mowrer describes him as "an accomplished scholar, not only in the field of classical religion . . . but also in respect to the theories and theoretical dilemmas of contemporary psychiatry, psychology and sociology". Akhilananda states that Hindu religion, philosophy and psychology are inseparably connected, and he considers that it will be worth while for Western psychiatrists and Eastern psychiatrists who are trained in the Western system to consider the contribution of Hindu psychologists in the field of technical training of the mind and in the development of the philosophy of life. With that in view he has presented this book, compiled from originally extemporaneous lectures, delivered and recorded in Boston and Providence, in the United States.

In the first chapter, which is entitled "Therapeutic Value of Indian Psychology", Akhilananda refers with a good deal of understanding to the present-day concept of psychosomatic disease and its treatment, describes briefly the various Western schools of abnormal psychology, and then outlines what Indian psychology has to offer in this field. He sums up thus: "Hindu and other schools of Indian psychology can make a tremendous contribution to the development of personality through the integration of the emotions and development of will, both of which are essential for harmonious and peaceful living as well as for spiritual realization." Subsequent chapters deal in turn with the various psychological conditions and states of maladjustment that threaten mental and physical well-being, relating them and their solution to religion in a very broad sense.

It is not necessary to agree with the author's ideas in detail, or even with many of his broad principles, to find this book stimulating. However, for most thoughtful people there will be many points of agreement; and even when one disagrees, perhaps quite strongly, Swami Akhilananda's approach is so tolerant and intelligent that disagreement with him is not embarrassing. The book will reward any reader who cares to bring to its reading corresponding tolerance and intelligence.

The Year Book of Pediatrics (1953-1954 Year Book Series). Edited by Sydney S. Gellis, M.D., and Isaac A. Abt, M.D.; 1953. Chicago: The Year Book Publishers, Incorporated. 7½" x 5¼", pp. 436, with many illustrations. Price: $6.00.

Notable advances have been made in pædiatrics in recent years, and the editor of this Year Book has had a large range of literature to select from. The advances referred to include improvements in the field of diagnosis and treatment of cardio-vascular conditions, the discovery of patients with congenital deficiency of γ globulin, the testing of γ globulin in prophylaxis against poliomyelitis, early experiments with the new poliomyelitis vaccine, investigations into newer types of hæmoglobin, the application of paper chromatography to metabolic disturbances of childhood, and developments in the field of pædiatric endocrinology. The material is grouped into chapters on the premature and the newborn, nutrition and metabolism, infectious disease and immunity (with particular reference to poliomyelitis and tuberculosis), allergy, dentistry and oto-laryngology, ophthalmology, the respiratory tract, the gastro-intestinal and genito-urinary tracts, the heart and blood vessels, the blood, endocrinology, orthopædics, dermatology, neurology and psychiatry, therapeutics and toxicology, and miscellaneous subjects. In a great many instances the editorial comment includes a quoted comment from one or more authorities with whom the editor has discussed the particular paper; the advantages of this over the usual system are obvious. The volume can be commended not only to pædiatricians and general practitioners, but to all whose particular interests overlap the field of pædiatrics.

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THE STATE OF THE PUBLIC HEALTH IN GREAT BRITAIN.

THE report of the Ministry of Health of Great Britain is published every year in two parts. The report for the year ended December 31, 1952, has now appeared. The first part, which dealt with the National Health Service and also with welfare, food, drugs and civil defence, was presented by the Minister for Health to Parliament by command of Her Majesty in September, 1953. Part II, which deals with the state of the public health and is, in fact, the annual report of the Chief Medical Officer for the year 1952, was presented by the Minister of Health to Parliament by command of Her Majesty in December, 1953. Part II is full of interest and it is proposed to bring its leading features to the notice of Australian practitioners. Dr. John A. Charles, the chief medical officer, explains that the report is the work of many of his officers acting in collaboration, but that he is responsible for the whole. He has written an introduction which deals with the main features of the document. This introduction is more than a mere summary—it contains many wise and discriminating statements. At the outset, Dr. Charles remarks that it is paradoxical that records of sickness and death should be our main index of the state of the public health. The explanation is that we still lack a method of measuring directly the health of the nation. The absence of a direct and easily applied yardstick of national health tends to engender a negative attitude of mind and makes it easy to assume that the absence of this ability implies the presence of health. Seventeen hundred years ago Galen suggested that health might be defined in the following terms: "The condition in which we do not suffer pain and are not impeded in the activities of life is what we call health." This, however, was not Galen's only definition. He also wrote: "Health is a form of harmony in which the functions of body and mind are free to exercise in unimpaired capacity." This is the kind of definition which might be accepted everywhere today.

It should probably be pointed out that a great many of the observations made in this report would hold in regard to the Commonwealth of Australia. In the Commonwealth, however, we have no report in which observations on the health of the whole people of Australia are combined. The Commonwealth, as such, has not yet reached this stage. Health is a matter for the individual States, and we should have to collect together the separate reports of the States in order to gain an overall picture of what is happening amongst us. One of the most important observations in Britain in regard to the changing pattern of mortality would probably hold for Australia. We read that the three groups, diseases of the circulatory system, vascular diseases of the central nervous system and cancer, accounted for more than two-thirds of all deaths in England and Wales in 1952. Twenty years ago the proportion was rather less than half. This change must be credited to two steadily operating factors—the increased degree of control over certain communicable diseases and the extending longevity of the population. When people are protected from communicable diseases in their earlier years, when they have health measures of various kinds provided for them throughout their working years, they of necessity live longer; since people must die of something, failure of the circulation and malignant disease manifest themselves amongst persons in the older age groups. It is seldom that anyone lives so long that he or she dies purely of senile changes in a kind of withering of the faculties. The expectation of life at birth, which in 1841 was 40 years for males and 42 for females, in 1952 is, we are told, 67 years for males and 72 for females. In England and Wales, in the middle of 1952, the proportion of persons per thousand over 75 years of age was 32, and five in every thousand were 85 years of age and over. It is interesting to note that the number of deaths from disease of the coronary arteries was, in 1952, no less than 61,429 as compared with 40,330 four years earlier. There was an abrupt decline in the number of deaths assigned to hypertension with heart disease from 16,940 in 1951 to 10,992 in 1952. It is pointed out, however, that these figures must be accepted with reserve because of minor changes which have been made from time to time in office coding procedures to meet difficulty arising in the use of the new revision of the International Classification. There was no doubt, however, about the reduction in numbers of deaths due to influenza—1750 in 1952 compared with 15,809 in 1951, when there was a fairly severe epidemic. The incidence from cancer in England and Wales is not accurately known. Previously, the estimate of 2300 cases per million of the population was accepted as a guide for computing the total number, but it is now thought that the number is nearer 2500 per million, and in some areas of the country may exceed this. There is no complete voluntary registration of cancer, and until this is achieved the mortality figures are the most reliable basis for statistical purposes. It is obvious that everybody who suffers from cancer does not die of it. The number of deaths registered as due to cancer was 45,429 among males and 42,213 among females. It is interesting to note that amongst males cancer of the trachea and of the bronchus

and lungs not specified as secondary, heads the list, the number of cases being 11,981 as against 2237 among females. No less than 8285 females died of malignant disease of the breast and 6343 of malignant disease of the stomach; 8866 females died of cancer of unspecified site. It is interesting that between three and four thousand more males died of cancer of the trachea, bronchus and lung than of cancer of the stomach. The Principal Medical Officer points out that the statistics of maternal mortality show a substantial improvement and that the mortality in this field has been reduced by half since 1946. While the infant death rate as a whole shows a further decline in numbers with a correspondingly satisfactory diminution of infantile mortality rate, the same cannot be said of stillbirths or of deaths occurring during the first four weeks of life. The stillbirth rate of 22·7 per thousand live births has shown little change since 1949, and the neonatal mortality has hardly altered since 1950. The Principal Medical Officer regards the position as disappointing, and he states that it is a question whether we have not progressed so far as our existing knowledge of causes and contributory circumstances can take us, and whether the way to further improvement lies through research, rather than through the continued exploitation or modification of established methods. The overall picture of notifiable infectious diseases is encouraging and a further decline in the number of cases of diphtheria is reported. At the same time, there is a small yet "hard core of deaths" ascribed to this disease. The number of immunizations against diphtheria carried out within the year was 516,858, and this represents a slight decline from the figures of the previous year. The number of secondary or reinforcing injections given was 567,027, and this was an increase over the figures for 1951. Apparently a setback was given to the anti-diphtheria immunization campaign in 1950 by the suggestion that there might be a connexion between the site of injection and that of subsequent paralytic poliomyelitis, and it is thought that this setback has largely been made good. The level of protection afforded in the various health authority areas was found to vary considerably. In one area the proportion of children under five years of age immunized was 80·1%, in another 73·9% and in another 72·5%. By contrast, in ten other local authority areas the corresponding proportion was less than 40%. It is thought that these estimates are apt to be deceptive, and an effort is being made to devise an easily calculated index of diphtheria protection. From the clinical point of view, one important observation is made in regard to diphtheria, and that is that perhaps because of reduced incidence, diagnosis is more hesitantly made, and the consequent delay causes appropriate treatment to be withheld too long. Another possible factor may be the persistence of the *gravis* strain of the diphtheria bacillus, infection with which is a more serious matter than that due to the *mitis* variety. It is important to note that the case mortality rate among non-immunized children was 9·9%, but that among immunized children the rate was only 1·1%. Considerations of space make it necessary to pass over the part of the report dealing with infections of the respiratory tract and the sterilization of air, as well as the story about the smog which affected London between December 5 and 8, 1952. This disaster caused the death of some 4000 persons.

During the last few weeks reference has been made in these columns to the rheumatic diseases, and in particular to acute rheumatism or rheumatic fever, as it is often called. There is an interesting section in this report on the rheumatic diseases. It bears out a great deal of what was set out in our previous statements. During 1949 and 1950 a survey was carried out by specially trained interviewers, who visited people in their homes and inquired about illnesses and injuries which they had suffered from in the previous three months, rheumatism being the subject of a special question. The limitations of the technique used in the survey became obvious when an attempt was made to analyse the data obtained. It was found, however, that many of the persons interviewed, although they believed themselves to be suffering from rheumatic disease, had never sought medical advice about it. As a result a high proportion of the figures related to conditions which could only be described as "arthritis (unspecified)" or "rheumatism (unspecified)". It is clear that the collection of data on incidence and prevalence by means of interview surveys presents greater difficulties with the rheumatic diseases than with disease groups in which terminology is more precise and diagnosis more certain. One statement in regard to treatment with phenylbutazone ("Butazolidin") must be recorded. The reader is reminded that some years ago amidopyrine was widely advocated for the relief of pain due to rheumatism; it was eventually given up, however, because although it is a powerful analgesic, it was found to have toxic side effects of which the most dangerous was agranulocytosis. When phenylbutazone was shown to be effective in cases of rheumatoid arthritis, it was hoped that a valuable new addition had been made to the drugs which could be used with safety in the treatment of that disorder. Unfortunately, however, treatment with "Butazolidin" has, we read, proved to be less satisfactory than was first hoped, in that up to 44% of the patients treated with it experienced toxic side effects, and several cases of agranulocytosis, including three fatalities, have been reported. "Although it seems possible that a restricted and carefully controlled dosage can minimize the danger of treatment with this substance, it is already sufficiently clear that it should not be regarded as an alternative to aspirin, and that it should never be administered except under close medical supervision."

A reference to this report would not be satisfactory unless mention was made of the tuberculosis picture in 1952. During this year, deaths from all forms of tuberculosis reached a new low level of 10,585, giving a rate of 240 per million persons living. Of these 240 deaths, 212 would be the result of respiratory tuberculosis and 28 of non-respiratory forms of the disease. The total number of deaths from all forms of tuberculosis has fallen from 25,623 in 1939 to 10,585 in 1952. The total number in 1951 was 13,806 and in 1950 it was 15,969. It is interesting to note that at December 31, 1952, approximately 30,000 beds were occupied by tuberculosis patients, and it is stated that more than 7000 extra beds have been provided since the National Health Service began. As a result of this, the total number of persons awaiting admission to hospital has been reduced and the period of waiting has been shortened. Mass radiography in regard to tuberculosis has been carried on by 63 units working

among the civil population of England and Wales, and the average number of examinations per week throughout the country was over 50,000. The total number of examinations during the year was 2,622,506. Mass radiography statistics from October, 1943, to December 31, 1952, show that the total number of persons examined was 10,654,554; the percentage of this number found to be normal was 95. Previously unsuspected active tuberculosis of the lungs has been revealed in 3·3 persons per thousand. This proportion is falling slowly but steadily. During the year under review, an average of 147 such cases were detected each week. These represented 18% of all notifications of respiratory tuberculosis. Over 97% of persons who were recalled for further examination responded to the call. One important fact is that no less than 2098 cases of intrathoracic malignant disease have been detected, 1837 in males and 261 in females. The total of 2069 comprises no less than 1834 cases of carcinoma of the lung, 171 cases of metastases, 29 cases of lymphadenoma, 13 cases of lymphosarcoma, and 22 other cases of growths of the mediastinum or pleura which were proved to be malignant, but whose exact origin could not be determined. It is stated that in the light of experience gained over the past ten years, the whole method and conduct of mass miniature radiography have been under consideration by a committee of the Medical Research Council at the request of the Minister of Health.

There is much more of importance in this report than can be mentioned here. What has been set out should at least be sufficient to whet the appetites of those particularly interested in this subject so that they will seek the report for themselves.

Current Comment.

IDIOPATHIC PULMONARY HÆMOSIDEROSIS.

THE condition of idiopathic pulmonary hæmosiderosis, sometimes known as essential brown induration of the lungs, is regarded as rare, although in recent times, cases have been reported in increasing numbers. When W. G. Wyllie, W. Sheldon, M. Bodian and A. Barlow[1] published an important article on the subject in 1948, they were able to find only 17 cases reported in the literature and to this they added a further seven. Their total included the case occurring in a girl aged two years and nine months, reported by Douglas Reye, of Sydney, in 1945.[2] More recently, S. S. Gellis, J. L. D. Reinhold and S. Green[3] have collected reports on 29 cases in the literature. They point out that only 11 of these 29 cases were diagnosed *ante mortem*, and in only four cases were hæmosiderin-containing macrophages obtained from sputum, vomitus or aspiration material as a means of confirming the clinical impression. They stress the importance of this type of examination in cases of obscure iron deficiency anæmia associated with pulmonary changes; if the results of this examination are negative, they recommend aspiration lung puncture, and describe a suitable technique, although they admit that the procedure is not without hazard.

In view of the importance of radiographic appearances in the recognition of the disease, particular interest attaches to an article by C. J. Hodson and I. Gordon,[4] whose qualifications indicate that they are respectively a radiologist and a pædiatrician. They state that the radiographic appearances of the lungs are remarkable and quite characteristic in many instances, and have as yet scarcely received the critical attention that they deserve. They describe three further cases of the disease, with particular reference to these changes, and make an attempt to correlate the changes with the morbid processes involved. In a general description of the condition, they state that the age of onset is usually under ten years, and both sexes are equally involved. The clinical picture may follow one of two main patterns: in one, recurring acute episodes may end fatally in a matter of months, or gradually produce a chronic effect; in the other, the acute episodes are absent or ill-defined, and the disease is chronic in type throughout its course. The acute incidents, which occur at irregular intervals, are usually diagnosed as "bronchitis", and last from two or three days to as long as two weeks. They are characterized by fever, breathlessness, cyanosis, cough, weakness and lethargy. There may be bouts of pain in the chest or abdomen. At the same time there is rapidly developing pallor, which may become severe and be associated with slight icterus. The mentality remains clear. In most cases these are the only features of the early acute attacks, but almost invariably there comes a stage when hæmoptysis or hæmatemesis occurs; and from this time onwards the production of blood-stained sputum or vomitus becomes a regular part of the picture. There are few physical signs described apart from crepitations, rhonchi and perhaps an impaired percussion note in the chest; occasional enlargement of liver and spleen in the late stages; and sometimes the slow development of finger clubbing. Examination of the blood shows severe hypochromia with sometimes evidence of hæmolysis, and in the bone marrow there is evidence of a normoblastic reaction. In the intervals between acute episodes, the general health of the child is good, apart from anæmia. This anæmia, however, tends to lessen in the earlier stages of the disease and responds well to blood transfusion and iron therapy. In the insidious type the acute episodes are much milder and more protracted, and may even be absent. Moderate to severe anæmia with, sometimes, occasional hæmoptyses may be the only indications of the disease. In the later stages there is said to be progressive enlargement of the right side of the heart, which is thought to result from changes in the pulmonary circulation. It appears probable that this variety of the disease may be easily overlooked, unless deliberately sought for by means of serial radiographs or repeated analysis of gastric contents. The duration of the condition varies from a few months to many years. Death may result from anæmia and hæmorrhage, from respiratory or cardiac failure, or from intercurrent infection of the lungs. The prognosis appears to depend largely on the type and severity of the condition. The radiographic appearances described vary considerably, but appear to be of two main patterns. The one consists of multiple, "acute-looking" blotchy shadows scattered irregularly throughout both lung fields. The size of the individual lesion shadow varies from a few millimetres to two or three centimetres in diameter, and the number seen on any given radiograph varies from one or two to many dozens. The distribution typically changes over short periods of time, each lesion lasting only a few days. The shadows are similar in appearance to those thrown by acute embolic abscesses. The other pattern is a slowly developing but persistent change of the "reticular" type very similar to that found in cases of long-standing congestion of the pulmonary circulation. It affects mainly the middle and lower zones of the lung fields and gradually increases in density as the disease progresses. When marked it may be so dense as to obscure the pulmonary vascular pattern entirely. The two types of pattern are frequently superimposed. Although the acute clinical incidents are usually associated with extensive pulmonary shadowing of the "blotchy" type, and the later stages of the disease with the "reticular" pattern, the child may be severely ill with no demonstrable radiographic change, and serial films may be required to demonstrate a lesion. On the other hand, extensive pul-

[1] *Quart. J. Med.*, January, 1948.
[2] M. J. AUSTRALIA, January 13, 1945.
[3] *Am. J. Dis. Child.*, March, 1953.
[4] *J. Fac. Radiologists*, July, 1953.

monary changes of both types may be present when the patient is symptom-free. The main pathological features appear to be the result of widespread hæmorrhage into the lung tissue, either as a steady general seepage or as multiple local hæmorrhages. Scattered generally in the alveoli, interstitial tissue and lymphatic system of both lungs are innumerable phagocytes containing coarse granules of hæmosiderin. Superimposed on this general picture are small focal hæmorrhages from which the hæmosiderin is presumably derived. The ætiological basis of these changes has been the subject of much discussion, but no final decision has been reached. Reye, in the paper previously mentioned, discusses the question thoughtfully in relation to his own case and offers an hypothesis based on the assumption of some weakness, inherited or acquired, of the capillary bed of the lungs.

OCULAR DOMINANCE, HANDEDNESS AND THE CONTROLLING EYE.

THE idea of dominance in relation to the activities of the hands and feet is well recognized. Even those who are ambidextrous (or ambisinistrous, as some surgeons have been unkindly described) usually prefer one or the other hand. In general it is expected that dominance in the various bilateral structures concerned will be all on the same side and will correspond with dominance in the cerebral hemisphere on the opposite side. The eyes, however, present peculiar difficulties. The most superficial consideration of the action and innervation of the oculomotor muscles and of the cerebral distribution of the optic nerve fibres with the cortical representation of the various areas of the retinæ indicates that the eyes have not the separate and lateral character of, for example, the hands. It is obvious, however, in most people that one eye is dominant. Opinions have differed on how the dominant eye is to be recognized, but G. E. Berner and D. E. Berner[1] follow a widely accepted view in equating the dominant eye with the sighting eye. The important point to note is that the dominant eye may be on the same side of the body as the preferred hand (a state of affairs known as corresponding dominance) or on the opposite side (crossed dominance). The point comes to the fore in investigations that have been carried out for some years into a possible relationship between crossed dominance and reading difficulty. The Berners state the relevant problem thus:

> Among the children of normal intelligence who meet difficulty in learning to read is a group with a characteristic pattern. It begins in early childhood with the slow development of motor coordination, often accompanied by speech hesitations or frank stammering. At school age the children show poor visual imagery and memory, and reversals in reading and writing patterns, sometimes including complete mirror writing. Very poor reading and spelling are the outstanding difficulties. Nervous fatigue accentuates the problem. In more mature life the combined appearance of ocular discomfort, nervous disorganization, and disruption of established reading habits suggests a pattern of later origin.

Unfortunately for earlier hypotheses exhaustive surveys have failed to show a consistent link between this state of affairs and crossed dominance. Some children with crossed dominance have no such difficulties; some with corresponding dominance have the lot. The most complete survey that has been made showed no correlation outside the operation of chance between anomalies of lateral dominance and reading disability in the group of children studied. Thus the ocular dominance clue seems to have led to a dead end. However, the Berners have found a nearby but quite distinct path that offers much better prospects. They point out that when binocular vision has developed, there remains one visual act that is essentially monocular—the act of sighting (the sighting eye being, of course, the dominant eye). This is established early in life and is stable. As binocular vision develops, it becomes habitual to use two eyes as a unit for visual perception; but within the pattern of binocular vision there is rivalry between the two eyes, and one eye controls binocular perception. This eye the Berners have called "the controlling eye", and it is not necessarily the eye with which the person sights. The sighting, or dominant, eye is selected for an essentially monocular act; the controlling eye gains its mastery within the pattern of binocular vision. The dominant eye is stable from early life, but the controlling eye can be shifted, as the binocular pattern is easily influenced by changes in vision or controlled by training. The Berners then go on to explain that when a person has binocular vision, his motor reactions, speech, reading and writing are initiated by binocular images. Their investigations have led them to believe that when the controlling eye is on the side opposite that of the handedness, the motor initiation is poor and difficulties in speech, reading and writing ensue. Similar difficulties do not occur when the controlling eye is on the side of the handedness. Most important from the practical standpoint is that the difficulties can be relieved by shifting the control of the binocular pattern to the side of the handedness. This shifting of control is quite a practicable procedure, but how it is done and also how the controlling eye is recognized are matters for the ophthalmologist that we need not go into here. The Berners consider them in some detail. Investigation of more than 500 patients with and without symptoms of reading difficulty, defects of speech and allied visual-motor disorganization has convinced them that their hypothesis operates beyond the scope of chance. They quote encouraging figures for relief of symptoms by appropriate treatment.

[1] *Arch. Ophth.*, November, 1953.

RADIOTHERAPY FOR INOPERABLE GLANDS FROM SQUAMOUS-CELL CARCINOMA.

THE statement is commonly made that glands from squamous-cell carcinoma respond less rapidly and less completely to irradiation treatment than does the primary tumour, and there is much clinical evidence to support it. The statement has been recently repeated by J. R. Nuttall.[1] However, the clinical evidence is contradictory, and the technical factors are possibly unreliable; so that it is unwise to use them as a basis for generalizations about the relative radiosensitivity of primary tumour and glands. Despite this, Nuttall points out that acceptance of some difference in relative radiosensitivity seems inescapable. Accurate assessment is complicated by the fact that, whilst many primary sites are readily accessible to clinical examination, and the effect of treatment is easy to assess, only gross changes in glands are detectable clinically. The object of radiotherapeutic treatment of inoperable glands may be an attempt to effect a cure in glands which are comparatively small, to relieve pressure symptoms of large masses or to prevent ulceration and fungation. For the first, high dose treatment with severe reaction is justifiable. Nuttall refers to the glands affected by squamous carcinoma in two main groups—the superficial and the internal. He states that in the internal group there is a limited field of usefulness for irradiation of the mediastinum in cases of lung cancer in which upper mediastinal compression develops from masses of secondary glands. In the case of carcinoma of the cervix, although the dose distribution of combined local radium and general pelvic X-ray treatment is unsatisfactory, the glands often seem to be sufficiently sensitive for many patients to enjoy a period of apparent freedom from disease after this treatment. In the superficial group, inoperable glands in the neck are the most commonly treated by the radiotherapist. Glands in the neck vary widely in responsiveness to irradiation, and every treatment is somewhat of an experiment. It is impracticable to give to a volume greater than one-quarter of the neck a dose sufficient to produce cure. A single mass on one side of the neck is the most profitable lesion. Radium-needle implantation, external irradiation by radium bomb or X-ray therapy, or a combination of both external and interstitial

[1] *J. Fac. Radiologists*, October, 1953.

irradiation produces some satisfactory results—a volume implant may be used in single masses. From time to time it is suggested that pre-operative irradiation will convert inoperable into operable glands. Nuttall considers that this is illusory and that the risk that the operation will produce diffuse carcinomatosis is high. It may be noted that with axillary glands rather better results are obtained than in the groin, and pre-auricular and epitrochlear glands often respond well to treatment.

ELIMINATION OF HOSPITAL CROSS-INFECTION.

Two New Zealand plastic surgeons have reported some interesting and profitable experience in the control and virtually the elimination of hospital cross-infection in children. The report comes from the Bassam Hospital, near Wellington, New Zealand, and the authors are Cecily M. Pickerill, late plastic surgeon to Wellington Hospital, and H. P. Pickerill, consulting plastic surgeon to that hospital.[1] The importance of the subject needs no stressing. Cross-infection has been a matter of concern in all sections of children's hospitals, and its particular importance in relation to plastic surgery on young infants is obvious. Much careful scientific study has been given to the problem, and methods of control have been recommended in great variety and complexity. The Pickerills' method is basically very simple, and has proved remarkably effective. It consists simply in having the children nursed by their own mothers, a practice which has, of course, been strongly advocated by other pædiatricians on quite different grounds. With this other approach the Pickerills are in obvious sympathy, and they sum up the principle in a neat sentence: "Providence has so far provided all infants with a mother, for care and feeding (*pace* Aldous Huxley), and a mother is what an infant wants." However, from the particular viewpoint of cross-infection, the basic thought is contained in the statement that "if many persons do many things for many patients, cross-infection seems inevitable". It seems impossible, even with the best will in the world, for nurses to avoid conveying infection from one patient to another. The only alternative is for each patient to have his own nurse, and the mother is uniquely fitted for this role. Three aspects supporting this are put forward in this paper: immunity, insulation and psychological support. The point brought out in relation to immunity is that the mother's antibodies are demonstrable in the blood of the infant's umbilical cord, and he retains a passive immunity for several months, thereafter developing an active immunity to the same organisms. In the Pickerills' hospital the mother and infant have a room to themselves, and except when he goes to the operating theatre, he is touched by no one else. Thus the small patient has not only an individual nurse but also a nurse to whose organisms he is immune. The mother attends to the feeding of the child, and is encouraged to take him out into the sunshine and fresh air; so quite apart from the elimination of the cross-infection factor, the more satisfactory feeding procedure and the general attention to the baby's welfare in themselves help to improve immunity. The value of insulation is self-evident. The mother occupies a small private room with the infant and performs all those duties which, if done communally by nurses, would mean cross-infection; for example, she makes up the formula, feeds, baths and dresses her infant, changes napkins immediately, takes the patient out into the sunshine and fresh air as often as possible, and "cossets" him if he is cross or miserable. The nurse's duties and the mother's duties are sharply and strictly divided. Residual and resident infection is prevented by having each room thoroughly spring-cleaned as soon as a mother and infant are discharged from hospital, and before the admission on the next day of another mother and infant. The psychological benefit to an infant of having the mother always present has been already stated too often and too convincingly to warrant serious denial, and, as the Pickerills put it, the happy, contented, well-fed, weight-gaining infant is more resistant to infection. A further advantage is the interested and better informed cooperation that the mother is able to give during the follow-up period after she and the child return home.

The practicability of such a system will always be questioned, from the point of view of the mother and from that of the hospital. So far as the problem of mothers leaving their homes is concerned, the Pickerills' statement is that in twenty-five years they have never found this problem insuperable, nor have they had any serious difficulties with the control of mothers in a hospital when this was gone about in the right way. From the hospital's point of view, the apparent extravagance of providing single rooms is offset by a number of factors, the most important of which is the elimination of the tremendous waste of hospital beds resulting from prolongation of the time spent in hospital because of cross-infection. The greatly improved result in relation to plastic surgery also must be allowed to carry much weight of its own. The correction of congenital deformities is of undeniable importance, and the best functional results are obtained when treatment is carried out early. In the Pickerills' experience, primary union has been the rule. Morbidity is very rare and mortality is only 0·3%. In the year previous to the publishing of their paper, there had been no case of cross-infection, either medical or surgical, no morbidity following any operation, and no mortality, despite three operating sessions a week, at which most of the patients were infants of from three to six months of age. Never in eleven years has there been more than one case of gastro-enteritis, bronchopneumonia, scarlet fever, chicken-pox, measles or mumps in the hospital at one time. There would therefore seem to be a complete barrier to the spread of infection—surely an ideal state of affairs in any hospital.

[1] *Lancet*, February 27, 1954.

SMOKER'S RESPIRATORY SYNDROME.

VARIOUS disorders of the circulation and of the respiratory tract have been put down to smoking. G. L. Waldbott has described a respiratory syndrome which he claims is due to smoking.[1] Reference was made to an article of his with those of several other authors on that subject in the issue of August 29, 1953. The syndrome is characterized by a clear-cut triad of symptoms, namely, (*a*) chronic pharyngitis, (*b*) wheezing and dyspnœa and (*c*) a tendency to respiratory infections, with or without fever. In all 58 cases are described. The most characteristic and constant feature is the chronic inflammation of the pharyngeal mucosa and of the tonsillar area. It is usually fiery red and occasionally covered with mucopurulent material. Asthma-like wheezing, cough and expectoration are most pronounced in the morning. Dyspnœa on exertion occurred in about half the cases. Chest pains are rhythmic, darting and angina-like in character and occur in practically any part of the chest, radiating into the neck and arms with a sense of precordial constriction. The paroxysms of wheezing are not nearly so distressing as those in allergic asthma and the patient can sleep lying down. The wheezing is localized principally in the tracheo-bronchial area. Waldbott's patients could be separated into two distinct groups. Thirty-four patients exhibited symptoms which were promptly relieved by elimination of smoking. The twenty-four patients of the second group had extensive emphysema and wheezing. The sputum was copious and purulent. They suffered from pronounced dyspnœa on exertion. Elimination of smoking did not bring relief, and extensive antibiotic treatment had to be used. A third small group showed irreversible changes with only temporary relief from elimination of smoking and other treatment. It cannot then be certain that their condition was due to smoking, but they were all chronic heavy smokers. In a few cases the condition of allergic asthma was complicated by this syndrome, and the asthma did not yield to allergic treatment until smoking was stopped. The author claims that the syndrome leads to chronic emphysema and so-called "intrinsic asthma".

[1] *Ann. Int. Med.*, November, 1953.

Abstracts from Medical Literature.

RADIOLOGY.

The Normal Œsophago-Gastric Junction.

E. D. PALMER (*Radiology*, June, 1953) concludes, as a result of X-ray studies made upon 15 normal adult subjects following transœsophagoscopic attachment of silver brain-clips to the œsophago-gastric line of epithelial change, that a portion of the normal resting "abdominal œsophagus" is lined with gastric mucosa and, therefore, must be considered stomach. He states that the location of the normal resting œsophago-gastric junction varies considerably in its relation to the bony structures, according to general body configuration. The tubular gastric segment which extends up into the "œsophagus" may measure as much as three centimetres in length in the resting state, but it can be obliterated, to become part of the wall of the stomach proper, by distension of the gastric fundus. Under physiological conditions, the mucosa of the œsophago-gastric junction region appears to be mobile over the underlying tissues, and to be capable of considerable automatic migration, presumably through simple longitudinal contraction of its *muscularis mucosæ*.

Intervertebral Disk Fissures (Vacuum Intervertebral Disk).

J. RICHARD RAINES (*Am. J. Roentgenol.*, December, 1953) states that radiolucencies in the intervertebral disks are not rare. They represent a vacuum space in fissures remaining when parts of the disk degenerate. Because of this origin, the use of the term intervertebral disk fissure is suggested. Lateral views of the lumbar part of the spine, obtained with the spine in forced extension, give optimum visualization of the fissures. The fissures have no more significance than any other evidence of intervertebral disk degeneration. Thirty cases of intervertebral disk fissure are reviewed. These show no apparent relation to acute trauma or to protrusion of the *nucleus pulposus*.

Pulmonary Tension Disorders in Children.

J. A. CAMPBELL AND R. A. SILVER (*Radiology*, August, 1953) discuss radiological differentiation between solitary congenital cyst, subpleural blebs and tension pneumothorax. They state that all of these produce large, extremely clear areas of rarefaction and may rapidly give rise to alarming respiratory embarrassment. Solitary congenital cysts and tension pneumothorax produce the largest areas of involvement of this type and cause considerable rib separation, diaphragmatic compression and mediastinal displacement. The check-valve mechanism of the cyst causes a huge tension cavity, which greatly distorts the lobe in which it arises. Frequently these cysts will expand to occupy the entire hemithorax, but do not herniate across the anterior part of the mediastinum. When a loculated tension cyst arises in the extreme periphery of the lung, it may cause stretching of the overlying visceral pleura so as to occupy the pleural cavity completely. In such a case, the surrounding normal lung does not collapse, but is compressed against the mediastinum and becomes invisible. The area of rarefaction produced is extremely clear. An identical situation may arise from a huge solitary subpleural bleb. These forms closely resemble tension pneumothorax. The congenital cyst may be distinguished from tension pneumothorax or an excessively enlarged bleb by the following characteristics. First, there may be discernible areas of lung tissue at the apex or in the angles of the thorax, with absence of collapsed lung at the hilus. The unaffected lung is compressed, but not collapsed as in pneumothorax. In addition, one may see irregular dense lines of several incompletely formed trabeculations stretched obliquely across the illuminated area. Some of these represent the broncho-vascular structures leading to the surrounding lung tissue. Still further distinction may be made by noting the absence, around the collapsed lung, of a clear outline of the pleura, which is visible in most instances of pneumothorax. There is usually a very distinct herniation of the pleural sac across the anterior part of the mediastinum in tension pneumothorax, a feature which is absent or much less striking in congenital cyst. Even when a tension pneumothorax cavity is partitioned into cyst-like compartments by pleural adhesions, one should be able to make out the continuity of the pleural line over the collapsed portions of the lung. In contradistinction to this, the boundary between the bullous cavity and the adjacent emphysematous lung is difficult to follow as a continuous line. When such a border is visible, it is exceedingly thin and appears irregular at the points where the pulmonary septa project into the air-containing cavity. The differentiation may sometimes be aided by direct needle aspiration of the cystic cavity followed by injection of a small quantity of iodized oil. In tension pneumothorax, the injected oil follows the pleural contours of the collapsed area, whereas in the cyst it will outline the circumscribed limits of this uncollapsed cavity. The post-infectious pneumatocele may be distinguished by the surrounding inflammatory infiltrate and the characteristic changes in its appearance on a sequence of skiagrams. When a pneumatocele is suspected, conservative measures and serial skiagrams are indicated. During the initial consolidative phase of an interstitial pneumonia, such a lesion has the appearance of air bubbles deeply seated in the lung parenchyma. During the phase of consolidation, a small, poorly outlined spherical cavity is seen. With resolution of the consolidation, a vivid, thin-walled cyst is formed that is first surrounded by a wide margin of lung tissue, but may rapidly enlarge under tension so as to fill the entire lobe. Only at this stage is a problem in differentiation created, but identification may be established in the following ways. The pneumatocele may vary greatly in size from day to day, occasionally ballooning up to alarming proportions. Suddenly it may disappear entirely because of loss of the valvular mechanism in the bronchus, with immediate reexpansion of the surrounding lung. It is usually not accompanied by large areas of lobular atelectasis. Although the pneumatoceles frequently show the appearance and disappearance of shifting fluid levels, they rarely become converted into true abscesses. It is common in staphylococcic and tuberculous infections for one or more cyst-like areas to disappear while other similar areas of rarefaction develop. This indicates different stages of pneumonic development incidental to the bronchogenic spread of these infections. The vast majority of pneumatoceles disappear spontaneously as the infection subsides, although they may persist in the skiagram for several months after disappearance of the inflammatory densities. Following collapse or gradual disappearance of the cyst, the walls are impossible to find in the subsequent skiagrams.

Radiation Protection.

RICHARD H. CHAMBERLAIN (*J.A.M.A.*, October 3, 1953) states that with the increasing use of ionizing radiations, adequate knowledge of the nature of the hazards has been gained. Within reasonable limits, it is now understood what constitutes hazardous radiation for which protection is required, and the instruments and units are available with which to measure it. Who should be protected and the degree of protection required depend on individual circumstances, but the least radiation that can be given is always the best. How to achieve adequate protection is best determined according to the education and experience of the user in consultation with suitable consultants and advisers. Local committee control with a good programme of safety measures seems to offer the best solution to maintaining good radiation protection in practice.

Carcinoma of the Middle-Lobe Bronchus.

G. BRIAN LOCKE (*J. Fac. Radiologists*, July, 1953) states that carcinoma of the bronchus arising in the middle lobe has been found to be uncommon rather than rare. Twelve proved cases and eight probable cases have been seen by the author during the past two and a half years. During this period only eight cases of the "middle-lobe syndrome" have been recognized. The author states that both these conditions may present themselves in patients in the forties and fifties, with a history of hæmoptysis, or they may be found by a "pick-up" at mass radiography, the patients having no symptoms. The differentiation of these lesions has proved a very difficult and recurring problem, in which bronchoscopy and other diagnostic methods are frequently inconclusive, and no radiological technique has been found which will give a decisive answer in all cases. Bronchography is probably the most informative means of examination, and a smooth fibrous stricture may be differentiated from the abrupt and possibly irregular "stop" of an invasive bronchial neoplasm. If tomography demonstrates bronchostenosis without adjoining glandular calcification, this finding is very strongly suspicious of neoplasm. A segmental collapse is also slightly more in favour of neoplasm. Chest pain was more frequent in the tumour group, although it was present in two cases of the "middle-lobe syndrome". The advantage of the right posterior oblique position in tomography during investigation of the middle lobe is discussed.

The absence of radiological evidence of progression of the lesion when observed over many months does not exclude the possibility of bronchial neoplasm. It was found that a considerable number of the cases with collapse of the middle lobe had been diagnosed at some time as encysted interlobar effusions. This condition is now considered rare, and it is suggested that this diagnosis should not be made without support from bronchography.

Radiological Findings in Neuroblastoma.

R. S. SHERMAN AND R. LEAMING (*Radiology*, June, 1953) state that the radiologist should consider a diagnosis of neuroblastoma if the patient is an infant or young child with X-ray evidence of an abdominal mass, adenopathy, orbital or eye tumour and bilateral involvement of the bones. If well-developed changes are present in the skull, they alone can be considered reliable for a diagnosis. Only slightly less reliable is the presence of a mass in the adrenal area with calcification. Of equal reliability is the presence of bilateral, symmetrically placed areas of bone destruction showing ill-defined borders, cortical destruction, periosteal reaction, a fine patchy internal pattern, located most often in femora and humeri, soft-tissue mass formation and a rapid progression of the lesion, with some evidence of response to X-ray treatment. It is upon the detection of one or more of these three features that the radiologist must rest his diagnosis. Since most patients with neuroblastoma present two or all of these features in a more or less well-developed fashion, most cases of neuroblastoma are diagnosable with assurance by the radiologist.

PHYSICAL THERAPY.

Primary Round-Cell Tumours of Bone.

J. H. WALKER AND H. W. JONES (*Radiology*, November, 1953) present their experiences and conclusions in the management of round-cell tumours of bone. They make the following statements: (i) When round-cell tumours have been critically evaluated, a diagnosis of Ewing's sarcoma has frequently been shown to be erroneous. (ii) Primary reticulum-cell sarcoma of bone is seldom listed in a large series as an entity; though when it is recognized, the prognosis has been uniformly good. It should receive aggressive rather than palliative irradiation. (iii) Solitary myeloma may closely resemble Ewing's tumour histologically; these lesions are amenable to intensive irradiation. The authors go on to state that accurate classification of Ewing's tumour, reticulum-cell sarcoma and solitary myeloma may at times be impossible. The diagnosis of round-cell tumour of bone as a working diagnosis in doubtful cases allows an open mind in the prognosis and the application of treatment. Irradiation is the preferred treatment in most instances. Details are given of three cases originally thought to be Ewing's tumour, but subsequently regarded as reticulum-cell sarcoma, all of the patients being alive and well for five years after treatment. In these cases the lesions involved the spine, the femoral shaft and a rib respectively. Two other cases are described, the diagnosis being described as solitary myeloma; both patients are regarded as well five years after treatment. The authors do not believe that a therapeutic trial of irradiation is of any appreciable value in these cases in the arrival at a diagnosis, and specific diagnosis must rest upon adequate histopathological examination. When the primary site of the tumour is in an extremity, the entire bone should be irradiated. It is believed that the maximum tolerated dose of radiation should be given, even if the tumour should appear to be very radiosensitive.

Remote Fluoroscopic Control of Radiation Therapy.

RUSSELL H. MORGAN *et alii* (*Am. J. Roentgenol.*, November, 1953) have conducted experiments on the use of a fluoroscopic screen intensifier in radiation therapy and publish a preliminary report. They state that fluoroscopic control enables one to maintain the relationship of the radiation to the lesion satisfactorily, reduce the size of the irradiated field to a minimum and thus allow increased tumour dosage. The screen intensifier in use at the Johns Hopkins Hospital avoids the problem of radiation exposure of the radiotherapist. The therapeutic applications of the method have been investigated chiefly in lesions of the head, neck and thorax. In the treatment of pituitary adenomata, the control of alignment of the radiation was simple. In the treatment of carcinoma of the œsophagus, there was little difficulty in aligning the beam when the patient swallowed thick barium. It was interesting that the upper and lower limits of the lesion in the œsophagus were better identified on the screen than on X-ray films. Lesions of the spine and pelvis may be treated with great advantage by this method. There are indications that fluoroscopic control with screen intensification will overcome many of the problems in rotational therapy. A secondary advantage is that a photographic record can be made of each radiation treatment, which may be important in research.

Carcinoma of the Thoracic Part of the Œsophagus.

D. C. ADLER AND P. H. DEEB (*Am. J. Roentgenol.*, November, 1953) state that, in spite of the remarkable advances in thoracic surgery, there remains a considerable place for radiotherapy in carcinoma of the œsophagus. Radical deep X-ray therapy with the object of delivering cancericidal doses should be attempted with much greater frequency. This treatment can be delivered with the conventional deep X-ray therapy machines, but technical problems have been simplified in these cases by the advent of supervoltage therapy units and rotational therapy. A review of the literature covering the sterilization and apparent cure of carcinoma of the œsophagus by irradiation is given. The authors report in detail two cases of carcinoma of the œsophagus, in which autopsy after seventeen and thirty-four months, following combined external and intracavitary radiotherapy, failed to reveal any residual tumour. Another patient, who survived for twenty-five months, died of heart disease, and no thorough autopsy was obtained. No evidence of recurrence was obtained clinically, radiologically or by œsophagoscopy and biopsy. A plea is made for further investigation of the combined external and intracavitary method, with possible delivery of two-thirds of the tumour dose by external irradiation and one-third by intracavitary irradiation.

Radiotherapy for Cancer of the Penis.

M. LEDERMAN (*Brit. J. Urol.*, September, 1953) states that cancer of the penis is a rare disease, forming 2% of all male genito-urinary neoplasms and 1·25% of all malignant tumours in the male. Circumcision soon after birth is supposed to prevent this disease. Cancer of the penis is, in a sense, a misnomer, since it affects not so much the penis proper as the mucosa lining the preputial sac; although exceptionally the skin of the penile shaft or the mucosa of the penile urethra may be the primary site. Radiotherapy has a part to play in the treatment, but some difficulty arises from sepsis, from susceptibility to radiation damage and from intolerance of the skin of the groin to radiation. Neither surgery nor radiotherapy gives particularly good results when used alone; if the patient is to be given the best chance of saving his penis as well as his life, then there is room for both treatments. Generally the young patient and the early lesion are selected for irradiation, surgery being held in reserve in the event of failure. The elderly patient, or the more advanced tumour, is submitted to surgical treatment first, if feasible. Surgery is the treatment of choice for operable inguinal lymph node metastases. Of 44 patients treated first by radiotherapy and observed for five years, 24 are alive and well. Of these 24 patients, 13 have been able to retain the penis, but the remainder have had to submit to amputation because of failure of irradiation.

Radio-Resistant Testis Tumours.

L. G. LEWIS (*J. Urol.*, June, 1953) reports the five year follow-up results in 133 cases of highly malignant neoplasms of the testis. All the tumours in this series required more than 3000*r* lethal tumour dosage of radiation. Seminomata and benign tumours are excluded from the study. The high concentration of radiation required for these more malignant tumours is accompanied by danger of perforation of the stomach or duodenum; the average X-ray mortality is 6%. The author is convinced that radical orchidectomy (that is, with removal of all involved lymph glands) is indicated for all radio-resistant tumours of the testis. It is better to perform the retroperitoneal node dissection and removal of the entire spermatic cord at the time of the orchidectomy. If there is involvement of the nodes at the level of the renal pedicle, the transthoracic approach is thought to be the best, but it is accompanied by increase of morbidity and perhaps of mortality. In all cases, the pre-renal, pre-caval and para-aortic nodes are involved. Also, when the tunica of the testis is involved, nodes may be found (with metastases) along the common and external iliac vessels. The subinguinal nodes are not involved unless the scrotum is invaded. All the workers at the Walter Reed Army Hospital have performed over 300 radical resections of the retroperitoneal nodes without mortality and with very little morbidity.

Special Articles for the Clinician.

(Contributed by Request.)

XCVIII.

THE PROBLEM OF THE UNDESCENDED TESTICLE.

Bishop, of Guy's Hospital, in an excellent monograph on undescended testicle, which remains the most comprehensive article on the subject, makes the following statement: "The management of the undescended testicle provides an excellent example of the value of team work; let not the surgeon and the endocrinologist stand apart and each decry the other's results. The patient needs their closest co-operation; he has no interest in whether he is a good 'surgical' result or a good 'endocrine' result, he wants his testicle in the scrotum, and he wants to grow up to be a man and a father."

There are few subjects in pædiatric surgery in which there is so much confusion of thought in both diagnosis and treatment as "undescended testicle". This confusion often leads to heated argument amongst those who consider themselves to be experts, but much of it exists primarily because of a lack of clear definition of terms. For instance, the term "undescended testis" has been used in different ways in text-books and authoritative articles. In some cases it refers to all testes not in the scrotum at the time of inspection, in others to both ectopic testes and those of tardy or delayed descent, and in others it excludes both retractile and ectopic types. In most of the cases referred to a consultant the patients are not in need of active treatment, but on the other hand in many others an attitude of *laissez-faire* has resulted in lack of treatment too long for complete success to be expected. "Undescended testes" are four times as common in young boys as in young adults because 80% descend spontaneously. Only 20% of the patients have a congenital abnormality. This 20% represents only 0·1% to 0·5% of the adult male population.

The published health record of the Lady Gowrie Child Centres, 1940-1943, showed an incidence of undescended testes ranging from 2·5% in Adelaide to 40% in Melbourne in similar children between the ages of two and five years. This tremendous discrepancy is due, no doubt, to a failure to define terms.

When a patient presents who on inspection is found not to have his testicle in the scrotum, his condition must fall into one of the following three types: (i) retractile, (ii) ectopic, (iii) tardy or delayed descent, or incomplete descent.

A precise diagnosis is usually possible, and with it a precise course of treatment follows, and a precise prognosis. For a precise diagnosis, more than one examination is often necessary. The patient should be reclining comfortably and without apprehension, and the examiner with warm hands should gently palpate the area. Grasping at the testicle in the scrotum should be avoided, as this often makes the gonad disappear. It can slip into the abdomen and avoid detection. Success in finding an elusive gland is most likely if the hand is first placed in the iliac fossa cranial to the inguinal canal. By firmly stroking the area downwards in the line of the inguinal canal, a testis which cannot be felt may appear. Without releasing the tension of the stroking hand, and thus preventing the testis from disappearing again, the organ can be grasped between the finger and the thumb of the opposite hand, and an estimation can be made at the time of the length of the cord structures.

The Retractile Testis.

The retractile testicle lies above the pubes, sometimes in the inguinal canal, sometimes even in the abdomen, but most often in a large subcutaneous space, "the superficial inguinal pouch", to the outer side of the inguinal canal. Unless the patient is fat, the testis is here easily palpable. It may be pushed into the inguinal canal, when it usually becomes impalpable. The retractile testis is a variation of normal and requires no treatment. At puberty there is a great increase in size of the testes. Size and weight seem to play an important part in the maintenance of permanent position.

The Ectopic Testis.

The ectopic testis is easily felt and is almost always lateral to the inguinal canal, where it is often extremely mobile, depending on the length of the cord structures. According to the relative sizes of the external inguinal ring and the size of the testicle, the testis may sometimes be pushed into the canal, thus taking a hairpin-shaped course. The presence of a testis in a superficial inguinal pouch even above and lateral to the external inguinal ring does not mean that it is ectopic.

The criterion of diagnosis is that, however mobile the testis may be, it cannot be made to enter the scrotum, where its way is barred by a fibrous mechanical obstruction.

If the testis is not felt in the inguinal region, the perineal, femoral and penile areas should be searched before it is assumed that one is dealing with an abdominal testis.

Surgery is the only possible treatment for an ectopic testis, which, whatever its position, can always be placed in the scrotum, as it has a spermatic cord of sufficient length to permit this. This is most commonly performed when the patient is nine or ten years of age; but if an associated hernia or pain or torsion provides a surgical indication, it may be performed much earlier.

Delayed or Tardy Descent.

On examination the testis of third type may be felt in the normal line of descent of the testis, and by an acquired trick of manipulation it may be made to enter the neck of the scrotum, which shows that there is no mechanical barrier to descent. Short cord structures can be demonstrated by this manipulation at the same time.

It is impossible to tell by examination whether this testicle will later spontaneously enter the scrotum, or whether, if left, it will remain imperfectly descended. The treatment is expectant, hormonal or surgical.

Advocates of active treatment claim as indications that the abnormally situated testis is liable to (i) trauma, (ii) torsion, (iii) frequent association with an indirect hernia (70% to 90%), (iv) neoplasm and (v) degeneration, particularly impairment in spermatogenesis.

It is agreed by all that the first three conditions are cured by treatment.

The possibility of neoplasm is not very convincing as an indication, although it is frequently stated to be so. Malignant change in the imperfectly descended testis is 22 times more common than in the normal, but even so the actual occurrence is so infrequent as to be ignored. It should be noted that orchidopexy has little, if any, effect in changing the possibility of subsequent malignant development.

With regard to the problem of infertility, it is believed that the most important factor governing this is an abnormally warm environment. The scrotum, which is unique in having no subcutaneous fat, acts like a thermostat and by its dependency or otherwise keeps the testicles at an optimum temperature. Testes transplanted into the abdomen lose their power of spermatogenesis, but regain it when they are replaced in the scrotum. This is an animal experiment, and we do not know to what extent the human testis regains its spermatogenesis after a long period in the abdomen.

The Pathology of the Retained Testicle.

There is considerable room for investigation and research upon the characteristics and physiology of the retained testicle. Are there differences in structure and in function between the two types of retained testicle—the ectopic and the incompletely descended? An impression is that the ectopic testicle is one which is normal in size and shape, but which is prevented from assuming its normal position by reason of a mechanical barrier of fibrous tissue, and that the incompletely descended testicle is often very small and soft and sometimes is abnormal in shape, the epididymis being separated from the body of the testis. This is just an impression, which requires statistical confirmation, but it may support John Hunter's original view that it was the testis which was primarily at fault. Indeed, he thought that it was the imperfectly developed testis which interfered with descent and not the imperfect descent which interfered with the development of the testis.

Histological examination of the retained testicle may show tubular degeneration and great increase in interstitial tissue. These changes are not usual before puberty, but thereafter increase with age. Spermatocytes and spermatids may be seen, but usually no spermatozoa. The interstitial cells of Leydig are usually normal. The majority of patients have satisfactory internal secretion and develop secondary sexual characteristics normally. Small numbers of spermatozoa are produced for some years, but over 90% of testicles improperly descended after puberty are sterile. More definite work is necessary to show what is the latest time that

descent will produce effective testes. This is obviously of supreme importance from a surgical point of view. It is generally assumed that this is at puberty.

Fertility studies on patients on whom bilateral orchidopexy has been performed have shown a considerable increase in fertility over untreated patients. However, it must be realized that the fertility is decidedly subnormal in these cases, and reproduction is likely only in early adult life. To this there are odd exceptions. In one family bilateral cryptorchidism occurred for several generations. A man was also operated on at thirty-six years of age for bilateral cryptorchidism, married and had a child.

The crux of the problem of treatment is: "How long can we afford to leave the testis in an abnormal situation without fear of permanent damage?"

The hormone treatment of "undescended testicle", the term being used in the widest sense, is based upon the following facts.

The primates are the only species with testes in the scrotum at birth. This descent is achieved by the high content of chorionic gonadotrophins in the maternal circulation.

In monkeys, in which the testicles usually remain undescended until puberty, descent can be produced experimentally by injecting gonadotrophic hormones. This results in the testicles being increased in size and the vessels and spermatic cord being lengthened.

In man, rapid descent following exhibition of hormones leaves no doubt at all in the mind of the user of their efficacy; but in a large number of cases, although signs of puberty are produced and the penis enlarges, no such movement of the testes is noticed. It is very difficult to assess the results of hormone injections accurately and to be sure that cures by injection would not have spontaneously happened when the patient produced his own hormones in sufficient quantities.

Treatment.

The counsel of perfection is to give all patients whose testes are neither retractile nor ectopic a limited course of injections at eight years of age. The course consists of 500 international units of "Antuitrin-S" (gonadotrophic hormone) twice per week for six weeks. If after three months' time the situation is unchanged, an operation is performed.

But, from a practical point of view, it is often wiser to dispense with the preliminary course of injections. There is considerable local discomfort and mental strain associated with the bi-weekly injections, sometimes resulting in discontinuance of treatment. The injections are expensive. Bitter disappointment follows when it is announced that the injections have not been successful and that an operation will now be necessary. In many cases, perhaps as high as 80%, a hernia is present which sooner or later will require an operation.

Therefore, the present practice is to give hormones only to carefully selected patients who have under-developed genitalia and a feminine distribution of fat. There are many instances in which after the institution of a strict dietary regime and hormone therapy the testes, which have been "submerged in a sea of fat", have taken up residence in the scrotum. The other patients are all operated on at ten years of age.

Too early operation will mean that a number of patients who would right themselves will be operated on. The earlier the operation, the frailer the blood vessels and the greater the chance of subsequent atrophy.

There are unfortunately too many patients operated on by those without sufficient knowledge or technique in whom, some months after an operation to bring a testis down from the groin, examination reveals either nothing in the scrotum or else a nodule not much bigger than a pea.

On the other hand, no boy without testicles in the scrotum should reach the age of ten without being given the opportunity of being made more normal by surgery. Postponement of operation fosters neglect and a strong likelihood of irreparable damage occurring to the testis before operation. Also, if operation is performed too early the spermatic vessels and vas will be found to be very short; later, if the cord dissection is adequate and if spermatic vessels and vas are widely liberated retroperitoneally, the testis can be brought into the scrotum. In many surgical centres the Torek operation has now been discontinued, because of the high incidence of post-operative atrophy; in its place a one-stage orchidopexy is used, with sutures at the neck of the scrotum to prevent the testis from going above the pubis, or with traction on the testis by a temporary long suture to the thigh. A testis which has not been adequately brought down into the scrotum and which is stranded subcutaneously over the pubic bones is in a very vulnerable position and may be the site of pain, trauma and ultimate atrophy.

When there is doubt as to diagnosis, the patient should be examined on several occasions, or a course of hormones instituted. When neither testicle can be palpated, and is present either in the abdomen or in the inguinal canal, decision as to a course of action may be difficult. There are those who have obvious endocrine deficiency with small and poorly developed external genitalia. They should have a preliminary course of hormones. Subsequent exploration of the area may not be regarded as worth while if the testes remain impalpable.

There are also those who are normal-looking boys except for their testicular abnormality. In these one side may be explored and an attempt made to bring the testis down. If this is not wholly successful, the other side may be left untouched for fear also of damaging its internal secretion. This policy of surgical inactivity may also be wisest when one testis is very high in the inguinal canal and the one in the scrotum appears on examination to be a very inadequate gonad, as regards size, shape and structure.

An important surgical indication in both unilateral and bilateral "undescended testis" is the psychological factor. Patients with genital abnormalities conceal them and are very reticent in discussing their reactions to them. The acuteness of their psychological distress in being different from their fellows may therefore not be generally realized. This distress may even result in suicide in adolescence and early manhood. This is emphasized by the classical and oft-quoted story of the medical student, suffering from cryptorchidism, who shot himself after listening to a lecture by Sir Astley Cooper on the subject stressing the associated sterility. The sequel, that post-mortem examination revealed the presence of spermatozoa, makes the story more tragic still.

Serious consideration, for psychological reasons, should be given to placing artificial testes of acrylic in the scrotum in suitable cases.

MURRAY CLARKE,
Melbourne.

British Medical Association News.

MEETING OF THE FEDERAL COUNCIL.

A MEETING of the Federal Council of the British Medical Association in Australia was held at the Medical Society Hall, Albert Street, East Melbourne, on March 15, 16, 17 and 18, 1954, DR. A. J. COLLINS, the President, in the chair.

Minutes.

The minutes of the Federal Council meeting of October 26, 27, 28 and 29, 1953, which had been circulated among members, were taken as read and signed as correct.

Representatives.

The following representatives of the Branches were present:

New South Wales: Dr. A. J. Collins, D.S.O., M.C., Dr. W. F. Simmons, Dr. H. R. R. Grieve, Dr. A. J. Murray, O.B.E.

Queensland: Dr. A. E. Lee, Dr. H. W. Horn.

South Australia: Dr. L. R. Mallen, Dr. C. O. F. Rieger.

Tasmania: Dr. J. B. G. Muir, Dr. L. N. Gollan.

Victoria: Dr. H. C. Colville, Dr. Charles Byrne, Dr. Robert Southby.

Western Australia: Dr. D. E. Copping, Dr. C. W. Anderson.

The President, Dr. A. J. Collins, welcomed Dr. Gollan and Dr. Anderson as new members of the Council.

The President referred to the absence of Dr. H. Leigh Cook and Dr. T. Giblin, of Western Australia and Tasmania respectively, and said that in their service with the Federal Council they had displayed sound judgement and had always made notable contributions to the discussions of the Council. The Federal Council resolved to place on record its appreciation of the valuable services rendered to the Federal Council

and to the profession in Australia by Dr. H. Leigh Cook and Dr. T. Giblin while they were members of it.

Appointment of Office Bearers

Only one nomination for the office of president for the ensuing twelve months had been received—that of Dr. A. J. Collins, who was declared elected. Dr. Collins thanked the members for his election and for their continued confidence in him.

Only one nomination for the position of vice-president had been received—that of Dr. H. C. Colville, who was declared elected.

Only one nomination for the office of treasurer had been received—that of Dr. W. F. Simmons, who was declared elected.

Annual Report.

The annual report of the Federal Council for the year ended December 31, 1953, which had been circulated among members, was taken as read and received. The report was adopted.

Finance.

The financial statement and balance sheet for the Federal Council as at December 31, 1953, was received and adopted.

Dr. Simmons, the Honorary Treasurer, pointed out that the financial position of the Federal Council was satisfactory. There was an excess of income over expenditure for the year ended December 31, 1953, of £91. Dr. Simmons also presented a budget for the year 1954. He estimated that with two meetings of the Federal Council there would be a credit balance of approximately £4000. However, the members of the Federal Council should not feel too elated over the estimated excess of income over expenditure, because, he pointed out, the Federal Council might at any time find a suitable person to be appointed as Assistant General Secretary, and as soon as that happened any excess was likely to disappear.

Dr. Simmons also presented the Australasian Medical Congress (British Medical Association) Accumulated Funds Account. He said that after the expenses of the Eighth Session of Congress in Melbourne in 1952 had been met the reserves in the fund amounted to £3913. He explained that already some expenditure had been incurred in connexion with the Ninth Session of Congress, which was to be held in Sydney in 1955.

Dr. Simmons presented a statement setting out the *per capita* payments of the Branches up till the time of the meeting. He pointed out that his estimate of expenditure up to the end of 1954 was based on a capitation fee of 21s. per member.

Dr. Simmons presented a statement showing the position of the Organization Fund for the year ended December 31, 1953. He explained that the balance of the fund at December 31 was £1894.

Dr. Simmons presented a statement setting out the position of the Federal Independence Fund for the year ended December 31, 1953. He recalled that when this fund was originally started the Federal Council stated that when the money was no longer needed, what was left would be returned to contributors on a *pro rata* basis of their contributions. At the meeting of the Federal Council in August, 1952, it had been resolved that the contributors should be communicated with individually and informed that the Federal Council was ready to return the residue of their contributions to them *pro rata*. At the same time it was resolved that individual contributors should be informed that the Federal Council thought that the need for such continued, and contributors should be invited to leave at the disposal of the fund the balance to which they were entitled. Dr. Simmons explained that this had been done and that a number of members had asked that the surplus be returned to them.

Dr. Simmons presented a statement of the Federal Council Entertainment Fund, which showed a credit balance of £245.

The Federal Council resolved that Mr. G. E. Alexander should be appointed auditor for the ensuing year.

The Henry Simpson Newland Prize in Surgery.

Dr. W. F. Simmons presented a statement showing the details of the Henry Simpson Newland Prize Fund. The amount standing to the credit of the fund was £1083. The General Secretary explained that he had drawn up a statement setting out the details in connexion with the prize for distribution amongst medical graduates in different parts of the British Commonwealth. The General Secretary said that in the statement the term medical schools had been used in preference to that of universities because many medical graduates held collegiate diplomas by virtue of which they practised medicine, and not university diplomas. The statement would be sent to all the medical centres in the different countries of the British Commonwealth.

The Federal Council then discussed the type of medal which was to be cast in connexion with the prize, and its design. It was resolved that the medal should be a bronze medal and that the design should be left in the hands of Dr. H. C. Colville.

Medical Officers' Relief Fund (Federal).

On behalf of the trustees of the Medical Officers' Relief Fund (Federal), Dr. W. F. Simmons presented a report for the year ended December 31, 1953. He explained that the amount standing to the credit of the fund was £7580. Three widows were receiving benefactions. The trustees had resolved that the amount paid to them should be increased in the near future. The report of the trustees was adopted.

Federal Medical War Relief Fund.

On behalf of the trustees of the Federal Medical War Relief Fund, Dr. W. F. Simmons presented a report for the year ended December 31, 1953. He explained that the amount standing to the credit of the fund was £19,597. Fourteen benefactions had been made during the year—five to residents in New South Wales, six to residents in Victoria, one to Queensland and two to South Australia. He explained that the benefactions were being used for the education of the children of deceased medical officers, and that this meant that the fund would be called upon for many years to come. Dr. Simmons reminded the members of the Federal Council that in the previous twelve months a further appeal had been made to members of the Branches for donations to the fund. The sum of £160 had been forthcoming, and this had been of material assistance to the trustees, for they had been able to use this money and it had not been necessary to disturb their investments. The report was adopted.

Honours.

The General Secretary reported that he had sent congratulations on behalf of the Federal Council to the following medical practitioners, who had been honoured by Her Majesty Queen Elizabeth II: Sir Brian Herbert Swift, K.B., Sir Harry Wyatt Wunderly, K.B., Dr. Kate Isabel Campbell, C.B.E., Surgeon-Commander Eustace Alwynne Rowlands, O.B.E., Dr. Reginald Murray Dunstone, O.B.E., and Dr. John Thomson Gunther, O.B.E.

The Associated Pulp and Paper Makers' Council.

The General Secretary stated that he had received a communication from the Associated Pulp and Paper Makers' Council asking advice in regard to medical services at Burnie, Tasmania. It had been stated in the letter from the Council that the population of Burnie and district was upwards of 14,000 persons. To serve this population there were four private practitioners together with the medical officers resident at the Burnie Hospital. Some 1500 persons were employed in the paper-making and pulp mills. It was thought that more doctors should be available to attend these persons. The Council asked the Federal Council for its advice in regard to how more medical practitioners could be obtained for the area. Dr. L. N. Golian explained to the Federal Council that medical practice in and around the towns in northern Tasmania was unattractive. There was continual fear by the practitioners of interference by the State Government. The hospitals serving the area were controlled by the Government. Any member of the community might be admitted to these hospitals without the application of a means test, and there were no intermediate or private beds attached to the public hospitals. Private hospitals did not exist. Dr. J. B. G. Muir referred to a recent incident which was mentioned in a leading article in this journal in the issue of April 3, 1954, and which followed upon the refusal on the part of the Editor of The Medical Journal of Australia to accept an advertisement for part-time specialists for north-western Tasmania. He explained that the Branch of the Association was being heavily criticized in the daily Press for its opposition to the Government policy. The Government had consistently refused to agree to the establishment of intermediate and private beds in any public hospital in the State. After discussion it was resolved that the drafting of a reply to the Associated Pulp and Paper Makers' Council should be left in the hands of the President and the General Secretary.

Inquiries about the British Medical Association in Australia.

The General Secretary reported that he had received a communication from Mr. R. D. Goodman, of the Australian National University, asking for information in some detail about the British Medical Association in Australia, its membership, its relation to governments, and so on. The General Secretary said that he had supplied the information.

A Complaint about an Alleged Shortage of Doctors.

The General Secretary reported that he had received from the Commonwealth Minister for Health, Sir Earle Page, a letter which the Minister had received from Mr. E. James Harrison, M.P. for Blaxland, New South Wales, concerning the relative shortage of doctors in the Auburn municipality. The General Secretary explained that he had gone into the matter with a good deal of care and had found that some eleven doctors practised in Auburn itself and ten in the surrounding areas. The district was in fact provided with twenty-one medical practitioners and it could not be regarded as being undersupplied.

The Population of Australia.

The General Secretary reported that he had received from the Department of Immigration copies of issues of *The Statistical Bulletin* in which the latest figures of the Australian population were set out. The number of persons in the Commonwealth was estimated at 8,899,465. The number of persons in New South Wales was upwards of 3,442,000, in Victoria the number was more than 2,384,000, in Queensland the number was 1,265,000, in South Australia the number was 787,000, in Western Australia the population was upwards of 622,000, the population of Tasmania was 311,000, the Northern Territory had upwards of 17,000 persons, and the Australian Capital Territory had more than 29,000.

Inquiries from Southern Rhodesia.

The General Secretary reported that he had received communications from the Medical Association of Southern Rhodesia, asking for information in regard to the Commonwealth Government's health service scheme. The Association of Southern Rhodesia explained that they hoped to have an opportunity of presenting their Government with a scheme on lines similar to that being carried on in Australia.

Inquiries from South Africa.

The General Secretary reported that he had received from the Medical Association of South Africa an inquiry with regard to the registration of specialists in Queensland. He had supplied the desired information in accordance with the Queensland Act dealing with the subject.

The Australian Association of Occupational Therapists.

The General Secretary reported that he had received a letter from the Australian Association of Occupational Therapists, seeking the names of medical practitioners who would be in England at the time of the holding of the Congress of the World Federation of Occupational Therapists in Edinburgh, from August 16 to 21, 1954. The Association wished to have the names and addresses of practitioners who would be willing to give addresses on the following subjects: tuberculosis, plastic surgery, poliomyelitis, cerebral palsy and psychiatry. The inquiry had been sent on to the Branches.

Overseas Medical Congresses.

The General Secretary reported that he had received information about the following medical congresses and had sent it on to the Branches: (*a*) The Third International Congress of Chest Physicians was to be held in Barcelona from October 4 to 8, 1954. (*b*) The Seventh Dominican Medical Congress was to be held at San Cristobel, Trujillo Province, Dominican Republic, from October 12 to 15, 1954. (*c*) The Austrian United Nations Association was holding a meeting of medical practitioners and public health officers at Bad Gastein, Salzburg, Austria, from May 24 to 28, 1954.

The Philippine Medical Association.

The General Secretary reported that he had received an invitation asking the Federal Council to send a representative to the forty-seventh annual meeting of the Philippine Medical Association, which was to be held at Manila from April 16 to 30, 1954. The information had been sent on to the Branches. The Federal Council resolved to send a message of goodwill to the Philippine Medical Association.

Australasian Medical Congress (British Medical Association).

Eighth Session.

At a previous meeting of the Federal Council reference had been made to a resolution of the Section of Orthopædics and Physical Medicine of the Eighth Session of Congress, to the effect that the Federal Council should be approached to consider recommendations that the existing law should be altered where necessary to provide that legal actions for damages against medical practitioners for allegations of negligence should be decided by a judge and not by a jury. At the previous meeting the Federal Council had resolved that, as it was a matter for State action, the matter should be referred to the Branches. The General Secretary reported that this had been done. The Queensland Branch had replied that in its opinion no good purpose would be served by bringing about a change in the jury system. The Victorian Branch sent a legal opinion which indicated that it would be useless to pursue the matter further. The South Australian Branch replied that actions against a medical practitioner in South Australia were decided by a judge. The Tasmanian Branch replied that no further action was contemplated.

The General Secretary referred to an item of expenditure in connexion with the Eighth Session, and pointed out that the sum of £101 18s. 9d. which had been paid in connexion with the ball out of funds of Congress represented the amount spent for the entertainment of official guests. He explained that the ball was generally a charge upon the Branch in the State in which a congress was held.

Ninth Session.

The General Secretary had several communications from the Executive Committee of the Ninth Session of Congress, which is to be held at Sydney from August 20 to 27, 1955.

The Executive Committee recommended that an invitation should be issued to His Excellency Sir William Slim, Governor-General of the Commonwealth, to accept the appointment of Patron to the Congress. The recommendation of the Executive Committee was adopted, and it was decided to send the invitation to the Governor-General.

The Executive Committee sent a recommendation to the Federal Council in regard to the rates of subscription for membership of the Ninth Session. The rates were as follows: (*a*) ordinary members, £5 5s.; (*b*) graduates of less than three years' standing, £3 3s.; (*c*) practitioners permanently retired from practice, £2 2s.; (*d*) joint subscription of man and wife, both being desirous of being members of Congress, £2 2s. less than their combined rates of subscription.

The Federal Council adopted the recommendation of the Executive Committee that invitations should be extended to overseas bodies to send representatives to the Congress.

The Federal Council discussed the appointment of the orator for the Henry Simpson Newland Oration, which was to be delivered at the time of Congress. It was explained that Dr. T. C. Routley, of Canada, was President-Elect of the British Medical Association, and that the annual meeting of the Association was to be held at Toronto, Canada, just before the Ninth Session of Congress. The opinion was expressed that it would be most suitable if Dr. Routley could be prevailed upon to visit Australia at the time of Congress and deliver the Henry Simpson Newland Oration. Members were reminded that Dr. Routley was Consultant-General and a past Chairman of Council of the World Medical Association. It was resolved that Dr. Routley should be invited to be the orator.

The General Secretary said that in the past it had been the accepted practice that presidents of sections of Congress should be appointed from members of the Branches other than the Branch of the State in which Congress was being held. There was no by-law dealing with this matter, and the procedure had grown up and been accepted from one session to another. The Executive Committee of the Ninth Session asked that the Federal Council should make a determination on this matter, as it did not appear to be a wise or necessary provision. The Federal Council resolved that there should be no geographical restriction in regard to the appointment of presidents of sections.

The Executive Committee reported that it had received nominations from some of the Branches for the position of vice-president of Congress. (One member of each Branch is elected as a vice-president of each session.) The following nominations had been received: New South Wales, Dr. W. F. Simmons; Victoria, Dr. H. G. Furnell, C.B.E., D.S.O., E.D.; South Australia, Dr. R. L. Thorold Grant; Queensland, Dr Stuart Patterson. The nominations were accepted.

Australasian Medical Publishing Company, Limited.

The General Secretary reported that he had received a letter from the Secretary of the Australasian Medical Publishing Company, Limited, in regard to the supply of reprints. In the letter it was stated that in certain circumstances and where an author was personally liable for payment, the Company would be prepared to supply reprints at a reduced rate.

The General Secretary also said that he had received a letter from the Company advising that there would be no

alteration in the present *per capita* payment of £1 by the several Branches; 10s. of each £1 was for the supply of The Medical Journal of Australia, and 10s. was to be credited to the Building Fund Trust Account of the Company, and in return the Branches were to receive debentures of the Company.

Visit of the Minister for Health.

The Minister for Health of the Commonwealth, Sir Earle Page, attended the meeting of the Federal Council with some of the departmental officers, in order that he might discuss with the Council some aspects of the *National Health Service Act*, the Pensioner Medical Service and pharmaceutical benefits. It had been planned that the Minister should confer with a special committee appointed for the purpose after the last meeting of the Council, which was held in Adelaide in October, 1953. Several urgent matters had prevented this conference from being held; amongst these was a by-election for the House of Representatives, Her Majesty the Queen's visit to Australia, and the floods which had affected the northern areas of New South Wales, and which had demanded the attention of the Minister. The discussions were informal, and questions were asked both by the Minister and by members of the Federal Council. The President thanked the Minister for having attended the meeting, and for his willingness to explain what appeared to be anomalies and difficulties.

Pharmaceutical Benefits Act, 1947-1952.

It will be remembered that at previous meetings of the Federal Council a good deal of discussion took place about the stocking of the doctor's bag with drugs and pharmaceutical supplies generally. The Federal Council had drawn up a list of drugs which appeared to be desirable, and the intention was that the drugs should be supplied to practitioners by pharmaceutical chemists. The General Secretary reported that he had received from the Minister a revised list of preparations which he thought would be sufficient to meet the needs of the practitioner. He also sent with this list a *pro forma*, which he thought the practitioner should complete when he made a requisition for the preparations. A good deal of discussion took place on this matter, and the Federal Council came to the conclusion that the list supplied by the Minister was not adequate and that certain preparations should be added to it. It was also opposed to the use of a *pro forma*; it did not think that practitioners would be willing to use the *pro forma* for the purpose suggested. The Federal Council eventually resolved that it would approve the suggestion of the Minister for the provision of drugs for doctors' bags, provided that the list was amended along certain lines, which were set out in detail, and provided that the statements regarding stock in hand and reference to the time factor were removed from the document. The list of drugs to be sent to the Minister for his approval was drawn up by a subcommittee of the Council consisting of Dr. H. W. Horn, Dr. R. Southby and Dr. L. R. Mallen.

At the previous meeting of the Federal Council a letter was received from Mr. W. R. Cutler, the president of the Federal Council of the Pharmaceutical Societies of Australia, suggesting the formation of a committee to deal with the accreditation of specific brands of drugs and medicinal preparations recommended by the Pharmaceutical Benefits Committee. Mr. Cutler thought that the committee should consist of two medical practitioners and two pharmaceutical chemists with a government nominee as chairman. The objects of the committee would be:

(*a*) To subject the present Pharmaceutical Benefits list to close scrutiny.
  1. To suggest the elimination of unwanted or otherwise unsuitable items.
  2. To check maximum quantities and offer suggestions of either raising or lowering the present limits.

(*b*) To visa all future additions.
  1. To consider the integrity and business standing of the wholesale marketing houses.
  2. To ascertain beyond any doubt the applicant's ability to give Commonwealth distribution.
  3. To verify the status of the conditions of manufacture and standardization of the items under application.

The proposed committee would be apart from the present Pharmaceutical Benefits Advisory Committee and would deal only with drugs recommended by that committee.

At the previous meeting it was resolved that the matter should be referred to the Branches. The General Secretary said that this had been done and that all the Branches had been opposed to the suggestion. They saw no necessity for the reviewal of a list drawn up by the Pharmaceutical Benefits Committee. The Federal Council therefore resolved that the proposal of the Federal Council of the Pharmaceutical Societies of Australia for the formation of an accreditation committee for pharmaceutical benefits should not be approved.

It was pointed out that it was necessary to nominate a Pharmaceutical Benefits Advisory Committee, in accordance with the provision of Section 101 of the *National Health Act*, 1953. Six names had to be submitted to the Minister, who would select four for appointment to the committee. The six names chosen for these purposes were Dr. A. J. Collins, Dr. L. R. Mallen, Dr. Byron Stanton, Dr. R. Southby, Dr. F. W. Carter, Dr. A. W. Morrow.

Medical Planning.

Pensioner Medical Service.

The first matter discussed by the Federal Council in connexion with the Pensioner Medical Service was the possible liberalization of the means test. In order that members may see this question in its true perspective, it will be necessary to reproduce the resolutions adopted by the Federal Council at its meeting in October, 1953. The resolutions were as follows:

> That the Minister be informed that as the entitlement to old age and other pensions had been materially liberalized by the Commonwealth Government, the agreement to attend pensioners at fees of 9s. and 11s. for three years from January 1, 1952, had automatically become subject to review.
>
> That the Minister for Health be informed that the Federal Council is of the opinion that the recent liberalization of the means test for pensioners has reached a point beyond which the Government has no claim on the medical profession for a concessional service.
>
> That the Federal Council inform the Minister for Health that its representatives would be prepared to discuss with him any alternative form of medical service for new groups of pensioners which he may propose, made eligible through future liberalization of the means test.
>
> That the Federal Council is opposed to any extension of a system in which the patient does not pay part of the fee.
>
> That the personnel of the committee to confer with the Minister for Health be as follows: Dr. A. J. Collins (President), Dr. H. C. Colville (Vice-President), Dr. H. W. Horn, Dr. H. R. R. Grieve, Dr. W. F. Simmons, Dr. Charles Byrne, Dr. L. R. Mallen, Dr. H. L Cook, Dr. T. Giblin and Dr. J. G. Hunter (General Secretary), and that the executive officers have power to appoint substitutes in the event of any of the foregoing being unable to attend conferences.

It will be noted that the attendance of the Minister at the recent meeting of the Federal Council was the result of the third of the resolutions adopted last October. It was pointed out in the general discussion that already additional groups of pensioners had been added to the Pensioner Medical Service. It was true that these were not large, but these groups were likely to be followed by others. It was quite likely also that an increase would be made in invalid pensions in the near future. Indeed, promises in that regard would probably be made by politicians at the forthcoming election. If the payment to invalid pensioners was increased, and if pensioners were allowed to earn more without having to sacrifice part of the pension, the number of pensioners would be materially increased and it would be difficult to know where this increase would stop. It was pointed out that if such an event took place, a new agreement would have to be entered into with the Government. Dr. Charles Byrne said that he thought the Branches should be asked what policy was to be adopted in regard to the Pensioner Medical Service of the future if the means test was liberalized. Dr. A. E. Lee thought that certain specific questions should be asked of the Branches, and Dr. H. W. Horn explained that the Queensland Branch Council had done this in regard to its own members. Dr. H. C. Colville agreed that specific questions should be asked of the Branches and that these questions should be formulated by the Federal Council.

After full discussion the Federal Council resolved that the Branches should be asked to define the policy that should be adopted in regard to the Pensioner Medical Service in the event of liberalization of the means test. The Federal Council also determined that the Branches should be asked to give consideration to the following questions: (i) In the event of new categories of pensioners being introduced after March 31, 1954, should this result (*a*) in a complete reconsideration of medical services for pensioners; or (*b*) a

general rise in the payment for pensioner medical services; or (c) should a new form of provision of medical service be introduced for these groups? (ii) If a new form of medical service was to be provided for this group, should this be by (a) an increased rate of medical payment for this group, or (b) the Government paying the premium for members joining medical benefit funds of their own choice, or (c) should they be excluded from the Pensioner Medical Service, or (d) any other alternative?

Further reference was made to the question of mileage rates, which had been discussed at the Federal Council's meeting of October, 1953. On that occasion reference had been made to a patient who lived between two towns. He had summoned a practitioner from the town further away from him than the other, which contained a practitioner whom the patient did not wish to consult. The department had refused to pay the mileage rates of the doctor. The Federal Council had recommended to the Minister that in respect of mileage in country areas, in order that the patient might have free choice of doctor, mileage should be estimated on the distance of the nearest practitioner to the patient. The General Secretary reported that he had received a reply from the Director-General of Health, in which he pointed out that the suggestion had a number of aspects which might possibly result in lower rates being paid than were at present operative. It was also necessary to determine whether the Federal Council referred to the nearest practitioner or to the nearest practitioner who was undertaking the service. It was pointed out in discussion that for purposes of mileage the country was probably divided into areas similar to those adopted by other departments for other purposes. The Federal Council resolved that the reply should be noted.

A letter was received from the New South Wales Branch, drawing the attention of the Federal Council to the frequent use of rubber stamps for the purpose of writing prescriptions, and recommending that all prescriptions for pensioner pharmaceutical benefits and also pharmaceutical benefits should be in the medical practitioner's handwriting. The General Secretary said that the matter had been referred to the Branches and that they had all supported the New South Wales attitude. It was pointed out that it was a simple matter to forge a practitioner's signature, but that it was not a simple matter to forge his handwriting in a prescription. The Federal Council also resolved to request the Branches to draw the attention of their members to the fact that all prescriptions for pensioner pharmaceutical benefits and also pharmaceutical benefits should be written in the medical practitioner's handwriting.

Reference was made to the Medical Services Committees of Inquiry. It was pointed out that according to Section 108 of the *National Health Act*, the Minister might establish a committee called the Medical Services Federal Committee of Inquiry, which should consist of the Director-General and four medical practitioners appointed by the Minister from among six medical practitioners nominated by the Federal Council of the British Medical Association in Australia. The Federal Council selected the following six names to be submitted to the Minister: Dr. A. J. Collins, Dr. W. F. Simmons, Dr. H. R. R. Grieve, Dr. J. G. Hunter, Dr. D. E. Copping, Dr. C. W. Anderson. Reference was also made to Section 110 of the Act, according to which the Minister may establish in each State a committee called the Medical Services Committee of Inquiry for the State in which it was established, which should consist of the Deputy Director in the State and four medical practitioners appointed by the Minister from among six medical practitioners nominated by the Council of the Branch of the British Medical Association in that State. The Federal Council resolved that each Branch should be requested to nominate six medical practitioners, from whom the Minister for Health might appoint four to constitute a Medical Services State Committee of Inquiry.

Reference was made to an instance in which a practitioner resident in the country had been called upon to defend himself before a committee of inquiry. He had been forced to be absent from his practice for some considerable time, and he had been completely exonerated by the committee of inquiry. At the conclusion of proceedings his application for expenses had been refused. It was stated that according to Section 131 of the Act, a witness summoned to attend before a committee should be paid fees in accordance with the scale of fees payable in respect of attendance before the Supreme Court of the State or Territory in which the witness was required to attend, or in special circumstances such fees as the committee should direct. It was also a fact that when a medical practitioner was called upon to defend himself before a committee of inquiry, any witnesses called by him to give evidence on his behalf were not allowed to recover expenses. In discussion it was made clear that a witness who appeared before a committee of inquiry had to be summoned to do so by the chairman of the committee. The correct course for an accused practitioner to adopt when he wished to have evidence given on his behalf was to submit the name of the person whom he wished to call to the chairman of the committee, who might then summon the witness to attend. If a practitioner was called upon to defend himself against a charge, it was not likely that travelling or other expenses would be allowed to him. This was contrary to all court procedure.

A discussion took place on the methods which might be used to control excessive visiting of pensioners. It was pointed out that some practitioners who had for years given honorary service to pensioners in homes and institutions of various kinds were now submitting vouchers for their attendance, and this they were perfectly justified in doing. At the same time, the sums earned in a very short period of time were high. It might happen that a practitioner would see fifty or more patients at one visit to the home, and this would mean that he would submit an account for between £25 and £30. Again, it was pointed out that pensioners who for years had not been able to obtain the attendance of a doctor of their choice were now in a position to send for a doctor when they thought his attendance was needed by them. One member of the Federal Council pointed out that in his own practice, where he had been for many years, a large number of his patients had grown old with the practice and were in the habit of consulting their doctor when they thought necessary. It was easily understood that they would send for the doctor rather than travel to his consulting room to see him, because in such circumstances they had not to pay the cost of transport; it was the doctor who had to pay the transport to come to see them. Various methods of overcoming this difficulty were discussed.

At the meeting of the Federal Council in October, 1953, consideration was given to a communication from the President of the Federal Council of the Pharmaceutical Society of Australia, asking that consideration should be given to the inclusion of the British Pharmaceutical Codex in lieu of the British Pharmacopœia in the National Health Bill. The Federal Council decided at that time that in view of the action of the Minister for Health in defining, in the National Health Bill, the British Pharmacopœia as including the British Pharmacopœia, 1948, the proposal of the Pharmaceutical Society of Australia for the replacement of the British Pharmacopœia by the British Pharmaceutical Codex should not be approved. At the same time the Federal Council approved the proposal of the Society that all tablets and injections for the Pensioner Medical Service should come under a list and that no extemporaneous prescribing of these items should be considered. The General Secretary reported that he had received a communication from the New South Wales Branch objecting to this resolution. The Branch stated that the decision interfered with the freedom of practitioners to describe what they thought was required for the individual patient. After discussion the Federal Council determined that further consideration of this matter should be deferred.

A letter was received from the New South Wales Branch dealing with the simplification of voucher forms. The Branch suggested that it would be sufficient to give the patient's name and number on the voucher form and also on the prescription form. The Federal Council resolved to ask the Minister that the vouchers for medical service under the Pensioner Medical Service should be amended by the deletion of the pensioner's address.

Further consideration was given to a matter which had been before the Federal Council at its meeting in October, 1953. It had to do with a letter which had been received from The Royal Australasian College of Physicians, dealing with an approach which had been made by the College to the Minister for Health in regard to the provisions made for specialists or consultant physicians in the schedule of benefits, and the apparent anomalies that existed vis-à-vis the other branches of the profession. The Council of the College had made representations to the Minister for Health with a view to obtaining a larger rebate under the Medical Benefits Bill for patients referred to a specialist physician by another practitioner for a clinical medical opinion, and a larger rebate for a specialist physician when called by another physician to visit a patient in consultation. At the previous meeting the General Secretary had pointed out that the letter written by the College to the Federal Council was a courteous action. The letter had been sent to the several Branches, and some of them had expressed regret at the action of the College. At the previous meeting reference had been made to a conference between the Federal Council and the Presidents of The Royal Australasian College of Physicians and the Royal Australasian College of Surgeons, in which it was understood that the Colleges would not take

part in medico-political discussions (see The Medical Journal of Australia, April 24, 1943, page 375). The Federal Council had at its previous meeting reaffirmed its previous policy that it should be the one negotiating body to act on behalf of the profession, and that a letter should be sent to all college and associated bodies drawing attention to this. The General Secretary said that he had had an interview with the Secretary of The Royal Australasian College of Physicians, and had pointed out to him that the profession had always been careful to avoid asking the Government for more money. There was an impression that the schedule of benefits had been drawn up by the Federal Council, but of course this was not so. The schedule of benefits had been presented to the Federal Council by the Government. The Federal Council had studiously avoided the question of the actual payment of medical benefits. The General Secretary pointed out that the College of Surgeons had in December, 1942, stated that it was not willing to undertake medico-political activities. On the other hand, the College of Physicians had never actually stated this view, apart from what was said at the conference with the Federal Council already referred to. The late L. S. Latham had written to the Dominion Committee of The Royal Australasian College of Physicians in 1948, stating that the College reserved its right to deal with medico-political matters if it thought fit, and Dr. S. A. Smith had also stated that the College had never surrendered that right. The President of the Federal Council, Dr. A. J. Collins, remarked that the Royal Colleges and other bodies could not be expected to surrender the right to deal with medico-political matters; but he pointed out that it would be to the advantage of the profession if it could speak with one voice. For this purpose it was desirable that some form of consultation and cooperation should be devised in regard to such matters. The Federal Council therefore resolved that negotiations should be opened with The Royal Australasian College of Physicians and similar bodies for consultation on medico-political matters, with a view to ensuring cooperation in the presentation to the Government by the Federal Council of the British Medical Association of a common policy for the whole profession. It also determined that the executive officers should be empowered to enter into negotiations with The Royal Australasian College of Physicians and similar bodies.

Consideration was given to the outline of the Commonwealth Medical Benefits Scheme and the schedule of benefits as set out in a publication by the Department of Health. The Federal Council had before it a letter from the Victorian Branch, calling attention to a ruling of the Department of Health that the only services which ranked for Commonwealth benefit were those actually rendered by a medical practitioner, and that patients would not receive reimbursement of fees payable for services rendered by a trained nurse or an assistant in the employ of a doctor, pointing out that this ruling would lead to confusion in the rendering of accounts. The Federal Council also considered a circular issued by the Department—"M.B. Circular Number 7". This circular dealt with the interpretation of the National Health (Medical Benefits) Regulations and schedules to those regulations.

The Federal Council had before it the recommendations of a special committee of the New South Wales Branch Council set up to deal with the schedule of medical benefits.

At its meeting in October, 1953, it was resolved that the Minister for Health be urged to have the following provisos placed in the *National Health Act*.

1. "That the combined Government and organization benefits be never in excess of 90% of the doctor's account for the particular item concerned."

2. "That when hardship was involved, payment be made to the patient as a refund on presentation to the medical benefit organization of the doctor's receipted account."

It was also resolved that if difficulties made the inclusion of these provisos in the Act impracticable, there should be a provision in the Act that they should be made a condition of registration of medical benefit organizations. It had also been resolved that the Minister for Health should be asked to provide in the Act that the claim for benefits under the Medical Benefits Scheme might be filled in and signed only by the contributor or his direct representative, who should not be a person otherwise interested, such as the doctor submitting the relevant account or an officer of a medical benefit organization. The Minister was also to be asked to amend Section 23 of the *National Health Act* to ensure that payment of members of benefit societies should be on a refund basis. The General Secretary said that the Minister for Health had replied regretting his inability to amend the National Health Bill in accordance with the Council's suggestions.

The National Health Act.

It was noted that the *National Health Act* had been assented to on December 18, 1953. The General Secretary reported that he had received from the Minister for Health copies of the Act and copies also of his second reading speech. It was noted that parts 3 to 9 of the Act had not yet been proclaimed.

The General Secretary reported that he had attended Canberra during the passage of the National Health Bill through the House of Representatives.

Administration of Health Services.

At its meeting in October, 1953, the Federal Council had before it a memorandum on a form of administration of the health service prepared by Dr. C. E. Cook when he was Commissioner for Public Health in Western Australia. Consideration of the document had been deferred. The General Secretary said that the Queensland Branch was the only Branch which had expressed its opinion on the document. Dr. D. E. Copping and Dr. C. W. Anderson both reported that the scheme suggested by Dr. Cook had been working in Western Australia for some years and with considerable success. The result of the scheme was that greater collaboration than before had been achieved between the Department of Health and the practising members of the profession. It was decided that further consideration should be deferred until replies had been received from the other Branches.

The Campaign against Tuberculosis.

At its previous meeting the Federal Council approved of the request of the College of Radiologists of Australasia that the Federal Council should seek an increase in fees for reporting on mass chest survey films from £3 3s. to £4 4s. for a session consisting of 250 small or 25 large films. It was explained that all matters of fees for medical services of this kind were already receiving the consideration of the Treasury.

The Definition of a Specialist.

The Federal Council agreed that the time had arrived when it was necessary to define what was meant by a specialist. It was explained that in Queensland a specialist was defined by law, but elsewhere this was not so and the matter was stated by common consent to be one of extreme difficulty. Dr. H. R. R. Grieve said that two considerations had to be taken into account. The first was the qualifications of the individual, and the second was the type of practice in which he was engaged. Given the qualification, there should of course be a declaration that the man was practising solely in that specialty. This, he thought was essential. The President referred to the man who was practising as a general practitioner at one address and as a specialist at another. Some men for economic reasons were compelled to do general practice until they had attained sufficient eminence in the specialist sphere.

Dr. D. E. Copping, in the course of his remarks, referred to a practitioner who was practising a restricted specialty but who insisted on doing a certain amount of general practice in order, as he stated it, to keep himself sane. After discussion, Dr. A. E. Lee and Dr. H. R. R. Grieve were appointed a subcommittee to draw up a definition of a specialist. At a later stage of the meeting Dr. Lee and Dr. Grieve made their report, and the following definition of a specialist was accepted: "That a specialist be defined as a registered medical practitioner who (a) possesses a degree or diploma of a recognized university, college or faculty which is the certificate of higher qualification in a special branch of medicine, or (b) while not possessing such a degree or diploma, has been engaged for a period of not less than ten years in practice in a special branch of medicine, and further, who declares himself to be exclusively engaged in the practice of that specialty at a stated address. Nothing in this definition shall prevent a specialist from practising in other branches of medicine as a general practitioner elsewhere."

Company Formation by Medical Practitioners.

A letter was received from the New South Wales Branch requesting that consideration should be given to the ethical principles involved in the formation of a company by a number of medical practitioners for the purpose of carrying on a medical practice. The General Secretary reported that the matter had been referred to the Branches for their consideration and that replies had been received. The Queensland Branch had stated that, in its opinion, the formation of companies for the purpose of conducting medical practice and ancillary services was undesirable. The New South Wales Branch had replied that the formation of groups of doctors into companies under *The Companies Act* was prejudicial to the doctor-patient relationship, which

was fundamental in the Association's policy. The Branch recommended that no support be given to any proposals which might be made in this regard. The Victorian Branch sent a report by its legal advisers, but added that the ethical aspect of the matter had not been considered, but would be examined after it had been discussed at the meeting of the Federal Council. The South Australian Branch had stated that the Branch Council was of the opinion that there was nothing unethical in the medical practitioner forming himself into a company, provided all members of the company were medical practitioners and also members of the British Medical Association. At the same time the Council was not in favour of such a procedure. The Western Australian Branch had replied that the Council considered that the formation of companies of doctors opened up possibilities for abuse, and the only exceptions might be limited to members of the profession actually practising. It was also considered that necessary safeguards should be laid down to prevent any contravention of ethical principle, and that the articles of association of any proposed company should be submitted to the Branch Council for approval. The Tasmanian Branch had expressed the opinion that there was no objection to the procedure provided no breach of the ethical code was incurred. Dr. A. E. Lee said that it was necessary to deal with ethical principles. He found the subject a little difficult to discuss without bias. He thought that the New South Wales Branch statement was not correct. This was not an abstract problem and it might not be obvious why certain practitioners desired to form their groups into companies. There were certain advantages to be gained from the procedure. If a partnership was large, difficulties were many. In a partnership each member was severally and jointly responsible for the actions of one of them, and in the case of legal process all their assets might be swallowed up. With a company, only the share of one member was at stake. With every change in partnership the whole agreement of the partnership had to be rebuilt *de novo*, but this did not occur with a company. Control was easier in a company because a board of directors was responsible for it. The financial aspect was easier to control. In the case of a company, reserves could be put aside for expansion, and in a company also it was easy to make tax-free retiring allowances. These things could not be done in a partnership. On the ethical side, the partners were subject to ethical control, but a company was an entity. It was responsible for the doings of all its members. Dr. Lee asked in what way an impersonal entity could be controlled. How could the British Medical Association control a company? He thought that the difficulty might be got over if the directors were all members of the British Medical Association, in which case they would be subject to the control of the Association. Dr. D. E. Copping said that he supported Dr. Lee's remarks, particularly in regard to the difficulties associated with a partnership. A proprietary company was not very different from a partnership. Dr. H. R. R. Grieve said that he had been very interested in the remarks of Dr. Lee and Dr. Copping. They had, however, left the ethical points more or less uncovered. They pointed out that the by-laws of the company meant that it had to be identified by a name. There must be a company name and this name had to be used on letterheads and so on. The object of a company was to sell its wares, and in the case of a company of medical practitioners, to sell medical practice. The establishment of companies would increase competition and would place members of medical companies in an advantageous position in comparison with those who did not belong to a company. Inevitably the single practitioner would be gradually excluded. There was no doubt that such companies would operate to the detriment of those who had not formed a company. Finally, with a company the patient no longer had the right to hold his doctor personally responsible. Responsibility would have to be held by the company and this undoubtedly destroyed the doctor-patient relationship. Instead of a doctor-patient relationship, there would come into being a company-patient relationship. Dr. Grieve moved that in the opinion of the Federal Council the formation of medical companies was unethical and undesirable. Dr. Grieve's motion was seconded by Dr. A. J. Murray, who admitted that he could see the economic reason behind Dr. Lee's plea. In his opinion, companies would give openings to some "go-getters" to commercialize the practice of medicine. Dr. H. W. Horn agreed with the thought behind the motion, but said that he would like to see the word "unethical" left out. In his opinion, the British Medical Association could not control the ethics of a company. Of course, great difficulty sometimes arose with the control of individuals, for, as members of the Council knew, all doctors were not strictly ethical. Dr. Grieve said that he would be prepared to leave out the word "unethical" provided the statement was included that company formation was prejudicial to the doctor-patient relationship and therefore undesirable. Dr. C. O. F. Rieger supported Dr. Grieve's view and said that a partnership had difficulties but they were not insuperable. He could not see that company formation was unethical, but admitted that it was undesirable. Dr. Robert Southby quoted the legal opinion which had been given to the Victorian Branch and said that he would support the motion. Dr. Copping said that he would also support the motion. The President said that Dr. Lee's exposition had been dispassionate, but he could not help feeling that at some time ethical difficulties would arise in connexion with companies. The Secretary said that it would be impossible to control members of the company unless there was a by-law dealing with such control. If it was desired to form a company in a State, the Branch would have to decide the question of ethics. When the motion was put to the vote the Federal Council decided unanimously that the formation of companies by medical practitioners for the purpose of carrying on medical practice was prejudicial to the doctor-patient relationship and undesirable.

Publicity Committee.

The Publicity Committee of the Federal Council was reappointed as follows: Dr. A. J. Collins, Dr. W. F. Simmons, Dr. H. R. R. Grieve, Dr. A. E. Lee, Dr. L. R. Mallen and Dr. C. H. Dickson.

The Federal Council Monograph Fund.

The General Secretary reported that in accordance with the decision of the Federal Council at its meeting in October, 1953, a letter of appeal for donations to the Federal Council Monograph Fund under the signature of the President had been sent to the Editor of THE MEDICAL JOURNAL OF AUSTRALIA and had appeared in a leading article. (See THE MEDICAL JOURNAL OF AUSTRALIA, February 20, 1954.) On the motion of Dr. A. J. Murray the Federal Council decided that the sum of one hundred guineas should be donated from the funds of the Federal Council to the Fund.

The General Secretary reported that the Australasian Medical Publishing Company Limited had sent a donation to the Fund of two hundred and fifty guineas.

British Medical Association.

The General Secretary reported that a request had been received from the Parent Body for the appointment of a representative of the Federal Council to attend the annual meeting in Glasgow on July 1 to 9, 1954. The Branches had been asked to supply the names of practitioners who would be in England during July, 1954. The Federal Council resolved that Major-General Sir Samuel Burston should be appointed a representative of the Federal Council to attend the annual meeting of the Association in Glasgow on July 1 to 9, 1954.

A request for information had been received from the London office of the Association for information regarding the salaries of medical officers in the Repatriation Department. This information had been supplied.

A request had been received from the Parent Body for a copy of the article by Sir Hugh Poate on the capacity of the medical profession in Australia to absorb new members. A copy of the article had been supplied.

The General Secretary reported that the Empire Medical Advisory Bureau had sent a copy of a summary of regulations for post-graduate diplomas in course of instruction in post-graduate medicine.

World Medical Association.

The Federal Council had before it a copy of the minutes of the Seventh General Assembly of the World Medical Association held at The Hague, Netherlands, on August 31 to September 5, 1953. It also had a report by the General Secretary and Dr. L. R. Mallen.

The Secretary-General of the World Medical Association had forwarded copies of the minutes of the eighteenth council meeting of the World Medical Association, held at London on August 18 to 22, 1953. It had also a copy of the nineteenth council meeting held at The Hague on September 6, 1953, together with a factual statement about the committee on medical education and the committee on the medical education conference. The General Secretary reported that he had received the copy of a paper by Dr. F. Wibaut, Secretary-General of the Royal Netherlands Medical Association, dealing with the present position of the medical profession in the Netherlands. A copy of this article had been sent to each member of the Federal Council.

The Federal Council also dealt with the proposed second edition of the International Pharmacopœia. At its last meeting the Federal Council decided to ask Dr. Byron Stanton to comment on the second edition, which was being prepared by the World Health Organization. The General

Secretary presented a letter by Dr. Stanton. The General Secretary also presented two documents which had been prepared by the World Health Organization and which dealt with the procedure for the selection of recommended international non-proprietary names for drugs. This had been sent with a covering letter by the Secretary-General of the World Medical Association. The Secretary-General also presented an article by J. J. Horan dealing with a World Health Organization International Pharmacopœia. This was accompanied by a letter from Dr. Byron Stanton commenting on the article. In his letter Dr. Stanton stated that the data set out by Horan supplied the very reasons why the International Pharmacopœia could not in fact be internationally acceptable until it adopted the same methods as were adopted by the Commissions of Britain and the United States of America, but with complete international representation on its committee. Dr. Stanton said that this was a worthy objective.

The General Secretary also presented a statement which he had received from the Secretary-General of the World Medical Association setting out some amendments to the constitution and by-laws which had been sponsored by the American Medical Association. These by-laws provided for an amendment of article 15 and by-law 29 on the Council of the World Medical Association. The important part of the communication was the addition of a third paragraph to the by-law which reads as follows:

> Of the eleven (11) elected members of the Council at least two (2) shall come from Western and Northern Europe; at least one (1) from South-Eastern Europe, the Near East and Africa; at least one (1) from Asia; at least one (1) from the Pacific area; at least one (1) from Latin America and at least one (1) from North America. The other four (4) may be elected from any of these areas. The assignment of countries to the various areas shall be prescribed in the standing orders.

The Federal Council resolved to support the alterations to the article and by-law.

The Federal Council then dealt with the appointment of a delegate to represent the Federal Council at the next General Assembly to be held at Rome on September 26 to October 2, 1954. At the previous meeting of the Federal Council Dr. H. Leigh Cook had been nominated as a delegate. Since that time, Dr. Cook had been compelled for various reasons to retire from the Federal Council and it was agreed that, if possible, the delegate attending the General Assembly should be a member of the Federal Council. The Federal Council then resolved to invite Dr. H. W. Horn to accept appointment as a delegate to attend the Eighth General Assembly, and that failing Dr. Horn's ability to accept the appointment, the matter should be left in the hands of the executive officers. It was also resolved that Dr. R. N. Reilly and Dr. Elizabeth Bright should be appointed as observers to attend the Eighth General Assembly.

The subject of the venue of the Eleventh General Assembly was discussed. It was resolved that the Federal Council should issue an invitation to the World Medical Association to hold the Eleventh General Assembly in Australia. This would take place in 1957.

The General Secretary reported that he had been invited to send a report on the social services in Australia and said that he had done this.

National Health and Medical Research Council.

A reference was again made to the Thirty-fourth Session of the National Health and Medical Research Council, which was held at Canberra from November 7 to 19, 1952, and to the discussion that took place in regard to sufferers from Hansen's disease. At the previous meeting of the Federal Council and at the one before it had been resolved that representation should be made to the Minister for Health that the same social benefits should be allowed to sufferers from Hansen's disease as were allowed to sufferers from tuberculosis. The General Secretary reported that a communication had been received from the Minister that he had not yet been able to bring the matter to finality.

The Federal Council had before it the report by Dr. W. F. Simmons, its representative on the Council, of the thirty-sixth session, which was held at Canberra on December 4, 1953. The General Secretary said that the New South Wales Branch had recommended that support be given to the request of the National Health and Medical Research Council for an increased grant from the Government for medical research. The Federal Council resolved that the greatest possible support should be given by the Council to this request.

The President thanked Dr. Simmons for his report, which he characterized as extremely valuable and as covering the whole of the ground that had to be covered.

Commonwealth Department of Health.

A communication was received from the Director-General of Health advising that the Sixth International Cancer Congress would be held at Sao Paulo, Brazil, from July 23 to 29, 1954. The General Secretary said that Dr. A. L. Fraser, of Perth, would be attending the Congress, and the Federal Council decided to appoint him as its representative at the gathering.

The Director-General also wrote announcing the holding of several other international gatherings and congresses as follows. The International Association of Gerontology was to hold its Third Congress at London from July 19 to 23, 1954. The Third International Congress for Infantile Paralysis was to be held at Rome from September 5 to 10, 1954. The Fifth International Congress on Medical Health was to be held at Toronto from August 14 to 21, 1954. The Association of European and Mediterranean National Societies of Gastroenterology was to hold its fourth congress at Paris from June 27 to July 2, 1954.

A letter was received from the Director-General of Health expressing to the President and the General Secretary his appreciation of the great amount of help which had been given by officers and members of the Association to himself and his staff during 1953.

Repatriation Department.

On the agenda were several references to requests for increased fees which had been made in connexion with work carried out by the medical profession for the Repatriation Department. It was explained that all these matters were being considered by the Treasury and that no information about any of them had been received. The matters included the provision of medical benefits for widows, widowed mothers and orphans of the 1914-1918 and 1939-1945 wars; emergency treatment at week-ends of repatriation patients; the fees for consultations at specialist's rooms; the fees to be paid to visiting specialists; the fees payable to members of assessment appeal tribunals. The General Secretary pointed out that he had informed The Royal Australasian College of Physicians of the steps which were being taken to secure increased fees for consultation at the specialist's rooms. The Federal Treasurer, it was explained, had offered a fee of £2 10s. for a consultation by a specialist in his rooms to patients referred by Commonwealth Government departments, but the Treasurer had been informed that this payment was inadequate and that in the opinion of the Federal Council it should be increased to £3 3s. for the first consultation and to £2 2s. for a subsequent consultation, those being the fees usually charged in private practice.

Salaried Medical Officers.

The General Secretary reported that he had attended at Canberra a conference of the Repatriation Medical Officers' Association with the Commonwealth Public Service Board. The repatriation medical officers had expressed their appreciation of the help given to them by the General Secretary.

Fee for Examination of Applicants for Admission to the Commonwealth Public Service.

The General Secretary reported that he had received a letter from the Secretary of the Commonwealth Public Service Board advising him of an increase in the fee payable to local Commonwealth medical officers for the examination of applicants for admission to the Commonwealth public service. The fee had been increased from £1 1s. to £1 5s. as from December 31, 1953.

Rehabilitation Branch of the Department of Social Services: Fee for Completion of Form R6.

Reference was made to a resolution of the Federal Council at its meeting in October, 1953, in regard to the fee for the completion of Form R6 (general medical report for preliminary rehabilitation assessment) for submission to the Rehabilitation Branch of the Department of Social Services. The Council had resolved that representation should be made to the Department for increase in the fee for the completion of a form from £1 1s. to £2 2s. and that the Department be requested to have a form of consent from the patient attached to the form. The General Secretary explained that the matter rested with the Treasury and it was resolved that no further action should be taken at the present time.

Commonwealth Employees' Compensation Act.

The General Secretary reported that he had written again to the Commissioner for employees' compensation under the provisions of the *Commonwealth Employees' Compensation Act*, but that so far no reply had been received.

Income Tax and Social Services Contribution Assessment Act.

The General Secretary reported that no result had been achieved by the request of the Federal Council for increase in the fee payable to Commonwealth medical referees for examination of an "invalid relative". The fees payable at the time of the request were 10s. if the patient was examined at the consulting room and 15s. if he was examined in the patient's home. The fees asked for were £1 1s. and £1 5s.

Further reference was made to the depreciation allowable for medical text-books in income tax returns. The Victorian Branch had written asking that an increased rate of depreciation should be sought from the Department of Taxation. It was thought that the whole cost of text-books might be written off, but it was pointed out that this could not be done. If the whole cost of a text-book was written off, the text-book would have to be destroyed. It was resolved that no further action should be taken. The College of Radiologists of Australasia had also made application in regard to the writing off of radiological apparatus. It was resolved that consideration of the matter should be deferred until the next meeting and that in the meantime the College of Radiologists of Australasia should be asked to supply any appropriate information on the matter.

An inquiry was received from the Australian Dental Association about the possibility of an approach being made to the Commissioner of Taxation with the view to the securing of a ruling that expenses incurred by salaried medical practitioners or dentists in attending congresses should be allowed as taxation deductions. The ruling of the Department was that expenses voluntarily incurred by an employee to ensure that his professional knowledge was kept up to date were not necessarily incurred in the earning of his assessable income from his salary and were not an allowable deduction, with a proviso that such expenditure would be deductible only if it was a condition of the contract of employment that he should attend such congresses.

Fees Payable to Area Medical Officers of the Commonwealth Military Forces.

A request was received from the New South Wales Branch asking that fees payable to area medical officers of the Commonwealth military forces for medical services should be increased as follows: visits to the patient's home from 15s. to 17s. 6d., and attendance at the practitioner's surgery from 10s. 6d. to 15s. The Federal Council resolved to make this request to the Department of the Army.

Fees for Medical Inspection of Seamen.

A request was received from the Tasmanian Branch asking that consideration should be given to the adequacy of fees paid to medical practitioners for the examination of seamen. It was resolved that a request should be made to the Minister for Shipping that the fee payable to a medical inspector of seamen who was not a member of the Commonwealth Public Service for the examination of a seaman or apprentice during official hours should be increased from 10s. to 15s.

Examination with Report for Life Assurance.

A communication was received from the Life Offices' Association for Australasia complaining that some medical practitioners were not seeing that the proponent completed the personal statement in their presence at the time the examination of the proponent was made. It was resolved that the Branches should be communicated with and asked to notify their members what should be done. Dr. C. O. F. Rieger pointed out that when the proponent filled in his part of the proposal form before he came to the medical officer's surgery it was generally the fault of the insurance agent.

The Registration of Alien (New Australian) Medical Practitioners.

At its meeting in October, 1953, the Federal Council discussed the registration of alien (New Australian) medical practitioners. After discussion on that occasion it resolved that it was firmly of the opinion that the question of the examination of credentials and registration of displaced-person doctors was a matter for decision by the State registering bodies and should be referred to them. The Federal Council, however, was vitally concerned with the standard of training required by a medical graduate in order that the health of the people of Australia might be safeguarded. It considered that any relaxation of the present registration requirements in the State would be to the detriment of these standards. The General Secretary reported that he had sent this opinion to the Department of Immigration but that no reply had been received.

London House.

The General Secretary brought to the notice of the Federal Council an appeal which is being made on behalf of London House, Guildford Street, London. The warden, Brigadier *E. C. Pepper, C.B.E., D.S.O., had recently visited Australia* and had suggested that the British Medical Association might care to name one or more rooms in London House. *The cost of naming a room was £500 sterling. It was pointed* out in discussion which ensued that many hundreds of Australian graduates of medicine had stayed at London House *from time to time while they were doing post-*graduate work in London. Graduates in medicine were, of course, not the only graduates who availed themselves of the privileges of London House. Graduates from other faculties also went into residence there. Recently the facilities of London House had been extended by provision of quarters for female graduates and of a certain number of flats for married graduates. The upkeep of London House was being met very largely by the Lord Mayor of London's National Thanksgiving Fund, and this was done as a gesture of appreciation for the help given by Australia to Britain in the matter of food parcels and other gifts. The Federal Council resolved that for the purpose of "naming" rooms in London House a fund to be known as the "London House Fund of the Federal Council of the British Medical Association" be established and that donations to the fund be invited from members of the Branches. It was determined that the objective of the appeal should be to "name" two rooms, the cost being £1000 sterling or £1250 Australian currency. It was resolved that an account should be opened in the Commercial Banking Company of Sydney Limited, head office, to be known as "The London House Fund of the Federal Council of the British Medical Association" and that any two of the following, namely Dr. W. F. Simmons, Dr. A. J. Collins, and Dr. J. G. Hunter should be empowered to operate on the account, and that Miss H. Cameron be authorized to endorse cheques. It was also resolved that Dr. A. J. Collins and Dr. W. F. Simmons should be the trustees of the London House Fund of the Federal Council of the British Medical Association, and that the trustees be authorized to forward the moneys collected to London House.

The Pink Pages of the Telephone Directory.

At its meeting in October, 1953, the Federal Council instructed the General Secretary to write to the Postmaster-General's Department asking that the classification "skin specialist" be deleted from the pink pages of the Sydney telephone directory. The General Secretary reported that in the November, 1953, edition of the telephone directory the classification "skin specialist" had been deleted and replaced by a classification "skin treatment".

The College of General Practitioners.

At its previous meeting the Federal Council instructed the General Secretary to obtain information from the Branches in regard to the development of the formation of an Australian College of General Practitioners. The General Secretary reported that a regional council of the British College had been established in New South Wales and that a faculty of the college was in existence in Queensland. In Western Australia the section of general practice of the Western Australian Branch had decided to proceed with its development as a section within the ambit of the British Medical Association. No move had been made in South Australia. Several members of the Federal Council who had discussed this matter said that the type of practitioner who was interesting himself in this movement was a first-rate type and the hope was expressed that the College, whether it was a branch of the British College or whether an Australian College came into being, would concern itself solely with the education of the practitioner and the improvement of his standard of medical education, and that it would not concern itself with medico-political activities.

War Service Homes.

At its meeting in October, 1953, the Federal Council resolved to make representations to the Commonwealth Government that loans on war service homes should be made irrespective of the capital value of the property. The General Secretary reported that it was quite impossible to go beyond the limit of £3000 for any one home because there were so many applicants who had to be satisfied. Dr. W. F. Simmons pointed out that an ex-service medical officer would receive no advance if he wished to put up a house valued at £5000. It was resolved that the General Secretary should seek further information.

The Proposed Establishment of Funds for Relief Purposes of Floods in Britain, Holland and Belgium.

At the previous meeting of the Federal Council it was resolved that a legal opinion should be sought as to the possibility of the Federal Council making donations to funds for the assistance of medical practitioners affected by national disasters. The Federal Council's legal advisers had stated that this was not possible. The Federal Council could spend money on the advancement of scientific medicine in Australia and on promotion of the interests of the medical profession in Australia, but it could not spend any money in relation to projects outside the Australian Commonwealth.

The British Pharmacopœia Commission.

The General Secretary reported that a request had been received for cooperation in the examination of the scope of the next edition of the British Pharmacopœia. Certain lists had been submitted to the General Secretary, and it was resolved that Dr. Byron Stanton and Dr. F. W. Carter should be asked for their advice.

The Fluoridation of Drinking Water.

At its previous meeting the Federal Council discussed the fluoridation of drinking water as a measure for the preservation of general health and the reduction of dental caries. This matter was dealt with after receipt of a communication from the Australian Dental Association. The Federal Council then resolved that it was prepared to support the Federal Government in an investigation by competent scientific authorities into the question of fluoridation of drinking water. It was reported that the National Health and Medical Research Council had at its meeting on December 4, 1953, recommended that each State set up an advisory panel within its health department to review, advise on, and supervise proposals for addition of fluorine to communal water supplies. It expressed the view that the panel should include members of the medical and dental professions and of public health, a water engineer and an analytical chemist. The Federal Council resolved that it would give support to the foregoing resolutions of the National Health and Medical Research Council.

Date and Place of Next Meeting.

It was resolved that the next meeting of the Federal Council should be held in Brisbane on September 6, 1954.

Votes of Thanks.

It was resolved that the thanks of the Federal Council should be extended to the Council of the Victorian Branch for its hospitality and for the use of its offices; that the thanks of the Council should be extended to Dr. H. C. Colville, Dr. C. Byrne and Dr. R. Southby for their hospitality, to Dr. A. J. Collins, the President, for presiding at the meeting, and to Dr. J. G. Hunter and Miss H. Cameron for their services during the meeting.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

A PLEA FOR A PUBLIC HEALTH ACT.[1]

[*The Australian Practitioner*, January, 1878.]

THIS matter of Public Health . . . the vastness of it, and its importance to the general welfare, cannot be too much estimated. It is a subject that penetrates the homestead of every individual, from the palatial residence of the representative of royalty to the humble hut of the shepherd. The evils accruing from the insanitary condition of this colony strike with grim equality amidst the ranks of the high and low. The elector who does not urge the representative of the constituency to legislate upon matters of public health, may yet rue his want of duty towards himself and his family, by having to mourn the death of one or more of his dear ones from some preventible disease. The legislator who faithlessly neglects his first duty to his country, which should be the health of the people, may yet become the victim of his own neglect. Every day's delay may cost valuable lives. We all know how deeply lamented was the death of the late Prince Consort. It was the sacrifice of a valuable life by a preventible disease, produced by the insanitary condition of Windsor and its castle. Yet, we cannot but admit that the sacrifice, great as it was, produced the salvation of thousands of lives, by directing national attention to sanitation and public health.

[1] From the original in the Mitchell Library, Sydney.

Correspondence.

PELVIC PAINS, GYNÆCOLOGISTS AND NEUROSES.

SIR: After reading the proofs of my article on "Pelvic Pains, Gynæcologists and Neuroses", I continued to deal with my correspondence, and the next letter was as follows:

(Address),
14.3.54.

Dear Sir,

Below is a problem which I sincerely trust you may be able to solve for me.

I am 23 years of age, but unfortunately six weeks after my child was born (May, 1952) I had the right ovary and tube removed due to a cyst. I entered hospital again in September, 1953, to have the uterus stitched back into position, and it was found I was pregnant in the left tube, which was removed.

However, I was wondering if it would be possible to have an artificial tube inserted to enable me to have another child. Also if surgery of this kind has ever been attempted, and if so, with what success.

I would be very obliged if you would give me your opinion regarding this matter.

Yours sincerely,
(Mrs.) . . . .

Yours, etc.,
V. J. KINSELLA.

235 Macquarie Street,
Sydney,
March 19, 1954.

COLLEGE OF GENERAL PRACTITIONERS.

SIR: A Regional Faculty of the British College of General Practitioners was formed in New South Wales on October 30, 1953, and at present there are over 80 members. The main object of the College is to improve the standard and status of general practitioners. Two guiding principles of the College are: (i) not to interfere with the work of other medical organizations, for example, the Post-Graduate Committee in Medicine, the British Medical Association, and the Royal Colleges, and (ii) to limit the activities of the College to the academic aspects of general practice and not be medico-political.

All general practitioners will not become members, but it is hoped that all those with sound experience in practice and who are held in high esteem by their fellow members and by the public at large will join and assist with the foundation of the College. Those with less than five years' experience in general practice will be encouraged to join as associate members.

At present we are part of the British College of General Practitioners, which was formed in Great Britain in 1953, and now has over 3000 members. The College has made remarkable progress since its formation, and we in Australia are very fortunate to have the guidance and experience of the committee in Great Britain in our formative stages. Dr. W. Pickles, M.D., M.R.C.P. (London), of Aysgarth, Yorkshire, is the first President of the College. He will be remembered by many in Australia, which he visited in 1951 as a post-graduate lecturer. His work on epidemiology in general practice is world-renowned. Dr. John Hunt, F.R.C.P. (London), who was secretary of the Steering Committee in England, is now the first honorary secretary. I had the pleasure of conferring with him in London in 1952 on several occasions and know of his enthusiasm for, and intense interest in, the welfare and ideals of general practitioners.

It is the wish of the Committee of the New South Wales Regional Faculty to form a college in Australia as soon as practicable. Our parent body in Great Britain has also expressed the wish that we form our own College of General Practitioners. Canada has already formed its own College.

So far in Australia, Regional Faculties have been formed in New South Wales and Queensland.

The entrance fee to the College is £10 10s. (sterling) for full members and £1 1s. (sterling) for associate members. By consent of the British College, half of this fee is being retained in New South Wales to finance the work of our Regional Faculty. An annual subscription will no doubt be necessary next year. The amount of the subscription has not been decided upon, but our committee has recommended that it be £4 4s. (Australian). These subscriptions (up to £10) are an allowable tax deduction.

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Application forms for membership may be obtained from the Honorary Secretary, Dr. T. R. Street, 131 Macquarie Street, Sydney. The entrance fee is £12 12s. (Australian) for full members and £1 5s. (Australian) for associate members.

Yours, etc.,
W. A. CONOLLY.

Cessnock,
New South Wales,
March 31, 1954.

HEART DISEASE IN INDUSTRY.

SIR: I wish to thank Dr. Keith Bottomley for his comments in THE MEDICAL JOURNAL OF AUSTRALIA, March 20, 1954. The man who suffered a myocardial infarction in 1943 was awarded compensation. I agree that his heart was damaged, but the infarction healed with a firm scar and he was able to carry on for eight years. I do not agree that this damage accelerated his death. In my opinion death was due to myocardial ischæmia caused by the natural progression of the disease of his coronary arteries. I fear that my account of the miner with "slight non-disabling pneumoconiosis" was slightly misleading. The opinion that his disease was non-disabling was expressed by a Medical Board, after a clinical as well as a radiological examination. I found that the patient had severe emphysema of the common type, and I did not consider that his disability was caused by his work as a coal miner. I realize, however, that there is much room for difference of opinion in these matters, and so I was glad to have Dr. Bottomley's comments.

Yours, etc.,
F. A. E. LAWES.

185 Macquarie Street,
Sydney,
March 30, 1954.

COMPARISON OF DIFFERENT TYPES OF X-RAY FILMS FOR CASE-FINDING AND DIAGNOSIS OF SILICOSIS.

SIR: In the journal of March 6, 1954, Dr. J. G. Edwards adversely criticizes a paper on the above subject. He confesses to losing interest when he read that the observers were ignorant of the medical and occupational histories of the subjects.

I must confess to astonishment at a Rip Van Winkleism wherein there is no realization of the impossibility of having full clinical data and round-table consultations in chest X-ray surveys for case-finding until the cases have been found. It is a logical procedure for truth seekers to investigate how accurate local X-ray chest surveys are in detecting cases of silicosis.

The cheap gibe about the guessing competition has an element of truth as far as the guessing is concerned. Medical practice is founded to a great extent on guessing: "Judging or forming an opinion of, from reasons that seem preponderating, but are not decisive", or "solving by a correct conjecture". The wisest and best physicians and surgeons are those whose primary guesses lead to treatment or limited investigations for the comfort and cure of patients. And is not empirical treatment guessing? An element of guessing occurs in the pontifical pronouncements of panels of consultants in industrial medicine. Even in the realm of the final arbiters, the pathologists, some guessing or conjecturing occurs. The humility of good doctors in saying "I think I am right, but I may be wrong" is a saving grace of the profession.

To obtain the correct perspective of the work of Dr. Shiels and Dr. Thomas, let us go back to the origin of case-finding in chest surveys in Australia and pass on to the objects of their seeking.

Due to the foresight and energy of Dr. (now Sir Harry) Wunderly (physician), Dr. Cecil Eddy (physicist), the late Colonel Eric Cooper (physician) and Dr. John O'Sullivan (radiologist), chest surveys with miniature films were tentatively begun at the end of 1939 in Melbourne. In January, 1940, chest surveys of the members of the second Australian Imperial Force were undertaken, this being one of the earliest of such surveys in the world. Miniature films were found almost useless for diagnosis, but of incalculable value for case-finding.

The Proposed Establishment of Funds for Relief Purposes of Floods in Britain, Holland and Belgium.

At the previous meeting of the Federal Council it was resolved that a legal opinion should be sought as to the possibility of the Federal Council making donations to funds for the assistance of medical practitioners affected by national disasters. The Federal Council's legal advisers had stated that this was not possible. The Federal Council could spend money on the advancement of scientific medicine in Australia and on promotion of the interests of the medical profession in Australia, but it could not spend any money in relation to projects outside the Australian Commonwealth.

The British Pharmacopœia Commission.

The General Secretary reported that a request had been received for cooperation in the examination of the scope of the next edition of the British Pharmacopœia. Certain lists had been submitted to the General Secretary, and it was resolved that Dr. Byron Stanton and Dr. F. W. Carter should be asked for their advice.

The Fluoridation of Drinking Water.

At its previous meeting the Federal Council discussed the fluoridation of drinking water as a measure for the preservation of general health and the reduction of dental caries. This matter was dealt with after receipt of a communication from the Australian Dental Association. The Federal Council then resolved that it was prepared to support the Federal Government in an investigation by competent scientific authorities into the question of fluoridation of drinking water. It was reported that the National Health and Medical Research Council had at its meeting on December 4, 1953, recommended that each State set up an advisory panel within its health department to review, advise on, and supervise proposals for addition of fluorine to communal water supplies. It expressed the view that the panel should include members of the medical and dental professions and of public health, a water engineer and an analytical chemist. The Federal Council resolved that it would give support to the foregoing resolutions of the National Health and Medical Research Council.

Date and Place of Next Meeting.

It was resolved that the next meeting of the Federal Council should be held in Brisbane on September 6, 1954.

Votes of Thanks.

It was resolved that the thanks of the Federal Council should be extended to the Council of the Victorian Branch for its hospitality and for the use of its offices; that the thanks of the Council should be extended to Dr. H. C. Colville, Dr. C. Byrne and Dr. R. Southby for their hospitality, to Dr. A. J. Collins, the President, for presiding at the meeting, and to Dr. J. G. Hunter and Miss H. Cameron for their services during the meeting.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers,[1] official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

A PLEA FOR A PUBLIC HEALTH ACT.[1]

[*The Australian Practitioner*, January, 1878.]

THIS matter of Public Health . . . the vastness of it, and its importance to the general welfare, cannot be too much estimated. It is a subject that penetrates the homestead of every individual, from the palatial residence of the representative of royalty to the humble hut of the shepherd. The evils accruing from the insanitary condition of this colony strike with grim equality amidst the ranks of the high and low. The elector who does not urge the representative of the constituency to legislate upon matters of public health, may yet rue his want of duty towards himself and his family, by having to mourn the death of one or more of his dear ones from some preventible disease. The legislator who faithlessly neglects his first duty to his country, which should be the health of the people, may yet become the victim of his own neglect. Every day's delay may cost valuable lives. We all know how deeply lamented was the death of the late Prince Consort. It was the sacrifice of a valuable life by a preventible disease, produced by the insanitary condition of Windsor and its castle. Yet, we cannot but admit that the sacrifice, great as it was, produced the salvation of thousands of lives, by directing national attention to sanitation and public health.

[1] From the original in the Mitchell Library, Sydney.

Correspondence.

PELVIC PAINS, GYNÆCOLOGISTS AND NEUROSES.

SIR: After reading the proofs of my article on "Pelvic Pains, Gynæcologists and Neuroses", I continued to deal with my correspondence, and the next letter was as follows:

(Address),
14.3.54.

Dear Sir,

Below is a problem which I sincerely trust you may be able to solve for me.

I am 23 years of age, but unfortunately six weeks after my child was born (May, 1952) I had the right ovary and tube removed due to a cyst. I entered hospital again in September, 1953, to have the uterus stitched back into position, and it was found I was pregnant in the left tube, which was removed.

However, I was wondering if it would be possible to have an artificial tube inserted to enable me to have another child. Also if surgery of this kind has ever been attempted, and if so, with what success.

I would be very obliged if you would give me your opinion regarding this matter.

Yours sincerely,
(Mrs.) . . . .

Yours, etc.,
V. J. KINSELLA.

235 Macquarie Street,
Sydney,
March 19, 1954.

COLLEGE OF GENERAL PRACTITIONERS.

SIR: A Regional Faculty of the British College of General Practitioners was formed in New South Wales on October 30, 1953, and at present there are over 80 members. The main object of the College is to improve the standard and status of general practitioners. Two guiding principles of the College are: (i) not to interfere with the work of other medical organizations, for example, the Post-Graduate Committee in Medicine, the British Medical Association, and the Royal Colleges, and (ii) to limit the activities of the College to the academic aspects of general practice and not be medico-political.

All general practitioners will not become members, but it is hoped that all those with sound experience in practice and who are held in high esteem by their fellow members and by the public at large will join and assist with the foundation of the College. Those with less than five years' experience in general practice will be encouraged to join as associate members.

At present we are part of the British College of General Practitioners, which was formed in Great Britain in 1953, and now has over 3000 members. The College has made remarkable progress since its formation, and we in Australia are very fortunate to have the guidance and experience of the committee in Great Britain in our formative stages. Dr. W. Pickles, M.D., M.R.C.P. (London), of Aysgarth, Yorkshire, is the first President of the College. He will be remembered by many in Australia, which he visited in 1951 as a post-graduate lecturer. His work on epidemiology in general practice is world-renowned. Dr. John Hunt, F.R.C.P. (London), who was secretary of the Steering Committee in England, is now the first honorary secretary. I had the pleasure of conferring with him in London in 1952 on several occasions and know of his enthusiasm for, and intense interest in, the welfare and ideals of general practitioners.

It is the wish of the Committee of the New South Wales Regional Faculty to form a college in Australia as soon as practicable. Our parent body in Great Britain has also expressed the wish that we form our own College of General Practitioners. Canada has already formed its own College.

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Based on experience in surveys of the forces, overtures were made in 1946 to the employers of iron-foundry workers and to appropriate Trades Hall officials in Melbourne to start an investigation to find out how many cases of silicosis were missed and found in chest surveys with miniature films in comparison with those when large films were used. Plans for this were scotched by a protracted major strike.

This work has now been done in a very efficient way by Dr. Shiels and Dr. Thomas. To the general body of medical practitioners they have shown the degree of fallibility of a sample of readers and of techniques available to them in Melbourne for a survey of those employed in some dangerous occupations. They have rightly tested and overhauled the tools of trade they will use: men, methods and material.

No careful reader of the paper under discussion could possibly confuse the objectives of this investigation with clinical assessment of disability resulting from dust hazards, which latter is the final objective of these officers of the Industrial Hygiene Division.

Yours, etc.,

Melbourne, March 25, 1954. Keith H. Hallam.

AN UNUSUAL SYNDROME.

Sir: During the last two months, in three separate parts of New South Wales, I have come across six patients with predominantly the same symptoms lasting up to one week. They have all had in common sudden onset of severe headache and vomiting, accompanied by a feeling of great lassitude and a weakness of the lower limbs, sometimes with and sometimes without pain, and localized tenderness of the legs. There has been slight temperature usually. One young man who differed from the others in having a stiff neck and emotional instability had a cerebro-spinal fluid containing 140 lymphocytes per cubic millimetre and 95 milligrammes of protein per 100 cubic centimetres. No other lumbar punctures were done. I am wondering if these people are all suffering from the same disease, presumably a virus infection, and whether other doctors have seen the same kind of case recently.

Yours, etc.,

Nowra, New South Wales, Undated. F. W. Walton.

STAPHYLOCOCCAL INFECTIONS IN INFANTS.

Sir: Dr. Clair Isbister's letter draws attention to current outbreaks in Sydney of staphylococcal infection of the newborn. This laboratory is particularly interested in the strains of *Staphylococcus aureus* implicated in these outbreaks, and I would be grateful if pathologists throughout Australia who isolate coagulase-positive staphylococci from lesions in young infants would send these cultures to me for phage typing. It would assist our studies if details of the clinical appearance of the lesions were also sent, since we are more interested in those strains causing serious lesions than in those commonly found in conditions such as conjunctivitis of the newborn.

Yours, etc.,

Phyllis M. Rountree.

Fairfax Institute of Pathology, Royal Prince Alfred Hospital, Camperdown, New South Wales. March 22, 1954.

CORTISONE AND ACUTE RHEUMATISM.

Sir: Your "Current Comment" (The Medical Journal of Australia, March 20, 1954), "The Clinical Use of Cortisone: A Symposium", and your leader on "Acute Rheumatism" prompt the following remarks:

1. *Cortisone-Withdrawal Syndrome.*—The cortisone-withdrawal syndrome, on which Dr. Charles H. Slocumb has written, is not readily appreciated until it is presented at the bedside, and then observed over a period of weeks. It should perhaps be stated that there is some controversy as to how much of the symptoms are due to cortisone-withdrawal in the hypercortisone patient, and how much to a recrudescence of the disease. However, Dr. Slocomb deals with the matter also in the *Bulletin on Rheumatic Diseases* (Arthritis and Rheumatism Foundation, New York).

2. *Adrenal Suppression—"Unnecessary Prophylactic Treatment".*—It is known that patients who have had cortisone previously, have undergone operation successfully, without any measures having been taken (from ignorance) to protect the patient against possible adrenal suppression. As the "Current Comment" indicates, the susceptible patient who will succumb unless prophylactic measures are taken, cannot be predicted. It would appear that prophylaxis should begin in all patients (especially surgical patients) with routine direct questions to establish details of any prior cortisone administration. In one centre, it became the practice to administer cortisone pre-operatively to those patients who had had cortisone up to six months previously, giving 200 milligrammes forty-eight hours before, 200 milligrammes twenty-four hours before, and again on the day of operation (total 600 milligrammes); close observation, including an hourly pulse for twenty-four hours after operation, followed.

3. *Invalidity and Unemployability from Rheumatic Diseases.*—The time is overdue for the establishment in each large public hospital, especially the teaching hospital, of an arthritis and rheumatism clinic, with facilities for in-patient and out-patient care, physical therapy, and almoner services, along the lines of that begun recently in the Royal Prince Alfred Hospital, Sydney. To be complete, at least to equal the better overseas centres, and to combat the problem of "unemployability", such a clinic should be based on, or incorporate the features of, a properly established hospital department of physical medicine and rehabilitation. There should be at least the closest liaison with, and preferably control of, job-placement.

Yours, etc.,

639 Sandgate Road, Clayfield, Brisbane. March 25, 1954. Rodney Meyers.

THE FELLOWSHIP OF CHRISTIAN HEALING.

Sir: In the account of the meeting of the Fellowship of Christian Healing published in your issue of March 20 I fail to find any reference to the fact that the founder of Christianity claimed to effect most of his cures by casting out the devil or devils causing the disease. Thus dumbness was the outcome of an invasion by a "dumb devil" and so forth.

Yours, etc.,

The Hall, Kangaroo Ground, Victoria. March 25, 1954. W. A. Osborne.

ALCOHOLISM.

Sir: Dr. S. J. Minogue's paper published in your journal of March 6, 1954, contains much interesting information about the problem of alcoholism. One cannot, however, agree with his statement: "We are dealing with a medical and not a psychiatric disease."

His reference to Alcoholics Anonymous teaching the patient a philosophy of life and enabling him to live without tension shows how important are the psychological factors, even though there is an accompanying biochemical problem. The therapeutic influence of the group in Alcoholics Anonymous is a purely psychological one.

There is no doubt that in some cases alcoholism masks an underlying schizophrenia. The state of degradation to which many alcoholics sink, *plus* their tendency to develop ideas of reference and delusions of persecution, supports this idea. In other cases we are dealing with a masked manic-depressive disorder. The great capacity for intensive work that some patients often show is sometimes a sign of hypomania. The "unexplained attacks of great mental and physical fatigue" with accompanying impotence after giving up alcohol are often due to a melancholic type of depression. Therefore I would say that the psychological and psychiatric aspects of alcoholism are undoubtedly most important.

Yours, etc.,

111 Collins Street, Melbourne, March 23, 1954. F. W. Graham.

Congresses.

SECOND WORLD CONGRESS OF CARDIOLOGY.

THE second World Congress of Cardiology and twenty-seventh Scientific Sessions of the American Heart Association will be held jointly in Washington, D.C., U.S.A., from September 12 to 17, 1954. Membership of the Congress will be open to all members of the various affiliated national cardiac societies and associations of the world, and to other physicians and scientific workers of comparable status residing in countries where there are not as yet established national cardiac societies. Non-members are invited to attend the Congress by special invitation from the organizational committee. After the Congress there will be optional tours to cardiac centres in various parts of the United States and Canada. Further information may be obtained from Dr. L. W. Gorham, Secretary-General, World Congress of Cardiology, 44 East 23rd Street, New York 10, New York, U.S.A.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Course in Occupational Medicine.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a course in occupational medicine will be held at the School of Public Health and Tropical Medicine, University Grounds, Sydney, for one week beginning May 31, 1954. The course will be under the supervision of Dr. Gordon Smith and the following programme has been arranged: "Accident Prevention and Safety", Mr. J. A. Fraser and Mr. W. I. Stewart; "Sickness and Absence Recording", Dr. H. O. Lancaster and Dr. C. G. Roberts; "Radio-Activity Hazards", Dr. C. E. Eddy; "Workers' Compensation Problems", His Honour Judge Conybeare (Chairman of the Workers' Compensation Commission), Dr. W. E. George and Dr. Robert Hughes; "Tuberculosis in Relation to Occupation", Dr. Cotter Harvey and Dr. M. P. Susman. In addition, arrangements will be made for candidates to visit a factory using radiography, the Anti-Tuberculosis Association Clinic and a court hearing at the Workers' Compensation Commission.

Fee for attendance is £3 3s., and application should be made as soon as possible to the Course Secretary, The Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 5238, BW 7483. Telegraphic address: "Postgrad, Sydney." Closing date for application is May 7, 1954.

Medical Matters in Parliament.

NATIONAL HEALTH ACT, 1953.

THE following proclamation appeared in the *Commonwealth of Australia Gazette*, Number 21, of April 5, 1954.

PROCLAMATION.

Commonwealth of Australia to wit.
W. J. SLIM,
Governor-General.

By His Excellency the Governor-General in and over the Commonwealth of Australia.

WHEREAS it is provided by section two of the *National Health Act*, 1953, that—

(*a*) Parts I. and II. of that Act shall come into operation on the day on which that Act receives the Royal Assent; and

(*b*) the remaining provisions of that Act shall come into operation on such dates as are respectively fixed by Proclamation:

Now therefore I, Sir William Joseph Slim, the Governor-General aforesaid, acting with the advice of the Federal Executive Council, do hereby fix the fourteenth day of April, one thousand nine hundred and fifty-four, as the date on

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MARCH 20, 1954.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	7(4)	4(2)	..	..	4(3)	..	..	..	15
Amœbiasis	..	..	..	1(1)	1	..	..	..	2
Ancylostomiasis	..	..	1	..	..	..	20	..	21
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	3(1)	..	..	..	..	..	..	3
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	5(4)	19(15)	18(16)	..	..	..	2	..	44
Diphtheria	14(7)	2(1)	2	1(1)	5	..	..	3	27
Dysentery (Bacillary)	..	..	..	1(1)	4(4)	1(1)	..	..	6
Encephalitis	1	1	1	1	..	..	..	..	4
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	9(1)	18(10)	..	..	6(1)	..	..	..	33
Lead Poisoning	..	..	3	..	..	..	..	..	3
Leprosy	..	..	1	..	..	..	..	..	1
Leptospirosis	..	..	3	..	..	..	..	..	3
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	3(3)	3(3)	1(1)	..	1	..	..	..	8
Ophthalmia	..	..	..	..	2	..	..	..	2
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	36(17)	22(8)	2(1)	3(3)	64(52)	..	..	2	129
Puerperal Fever	1(1)	..	1	..	..	..	..	..	2
Rubella	..	13(11)	..	..	7(5)	..	..	..	20
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	13(4)	46(19)	3	2(1)	1	..	..	..	65
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	2	1(1)	..	..	..	..	..	3
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	46(19)	28(20)	25(15)	8(7)	9(4)	3(2)	1	..	120
Typhoid Fever	..	1	..	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	..	..	1	..	1(1)	..	..	..	2
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

which Parts III., IV., V., VI., VIII. and IX. of the *National Health Act*, 1953, shall come into operation.

Given under my Hand and the Great Seal of the Commonwealth of Australia this fifth day of April, in the (L.S.) year of our Lord, One thousand nine hundred and fifty-four, and in the third year of Her Majesty's reign.

By His Excellency's Command,

EARLE PAGE,
Minister of State for Health.

GOD SAVE THE QUEEN!

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following statement has appeared in the *New South Wales Government Gazette*, Number 15, of February 5, 1954.

The Governor-in-Council has approved of the appointment of John Joseph Witton Flynn, Esq., M.C., B.A., M.B., Ch.M., as President of the New South Wales Medical Board, vice Sir Hugh Raymond Guy Poate, retired, as from the 16th January, 1954, and of the appointment of Edward Gerard MacMahon, Esq., M.B., Ch.M., as a member of such Board, vice Sir Hugh Raymond Guy Poate, retired, to hold office for the balance of his predecessor's term of office, namely, until the 3rd August, 1960.

Notice.

SECTION OF INDUSTRIAL MEDICINE, VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

THE next meeting of the Section of Industrial Medicine of the Victorian Branch of the British Medical Association will be held in the Medical Society Hall, 426 Albert Street, East Melbourne, on Tuesday, April 20, 1954, at 8 p.m. A paper will be delivered by Dr. W. F. Cooper entitled "Organization of an 'In-Plant', Part-Time, Industrial Medical Service", and a paper by Dr. N. L. Dodd entitled "Management of Industrial Cases Attending the Surgery". The discussion will be opened by the President of the Section, Dr. J. H. Gowland. All members of the Branch are invited.

Nominations and Elections.

THE undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Willing, Richard Lyall, M.B., B.S., 1954 (Univ. Adelaide) (qualified 1953), 5 Leicester Avenue, Kilburn, South Australia.

Bampton, John Charles, M.B., B.S., 1954 (Univ. Adelaide) (qualified 1953), 146 Seventh Avenue, Royston Park, South Australia.

Cameron, Cyril Thomas Murray, M.B., B.S., 1954 (Univ. Adelaide) (qualified 1953), 77 Waratah Street, Seacliff, South Australia.

Wheaton, Malcolm Alfred, M.B., B.S., 1954 (Univ. Adelaide) (qualified 1953), Gilles Plains, South Australia.

Swiggs, Francis, M.B., B.S., 1954 (Univ. Adelaide) (qualified 1953), Cleve, South Australia.

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association: Reid, John Graham, M.B., B.S., 1953 (Univ. Adelaide); Campbell, Ian George, M.B., B.S., 1953 (Univ. Adelaide); Clezy, John Kenneth Albert, M.B., B.S., 1953 (Univ. Adelaide); Robinson, Michael Alexander, M.B., B.S., 1953 (Univ. Adelaide); Dowie, Donald Alexander, M.B., B.S., 1953 (Univ. Adelaide); Kneebone, John Henry, M.B., B.S., 1953 (Univ. Adelaide); Harbison, Peter Alan, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952); Smith, John Wasley, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952).

Deaths.

THE following death has been announced:

PRAAGST.—George Daniel Praagst, on March 20, 1954, at Surrey Hills, Victoria.

Diary for the Month.

APRIL 20.—New South Wales Branch, B.M.A.: Medical Politics Committee.
APRIL 21.—Western Australian Branch, B.M.A.: General Meeting.
APRIL 22.—Victorian Branch, B.M.A.: Executive of Branch Council.
APRIL 22.—New South Wales Branch, B.M.A.: Clinical Meeting.
APRIL 23.—Queensland Branch, B.M.A.: Council Meeting.
APRIL 24.—Victorian Branch, B.M.A.: Country Branch Meeting.
APRIL 27.—New South Wales Branch, B.M.A.: Ethics Committee.
APRIL 28.—Victorian Branch, B.M.A.: Branch Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Tasmania: Part-time specialist appointments for the north-west coast of Tasmania.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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